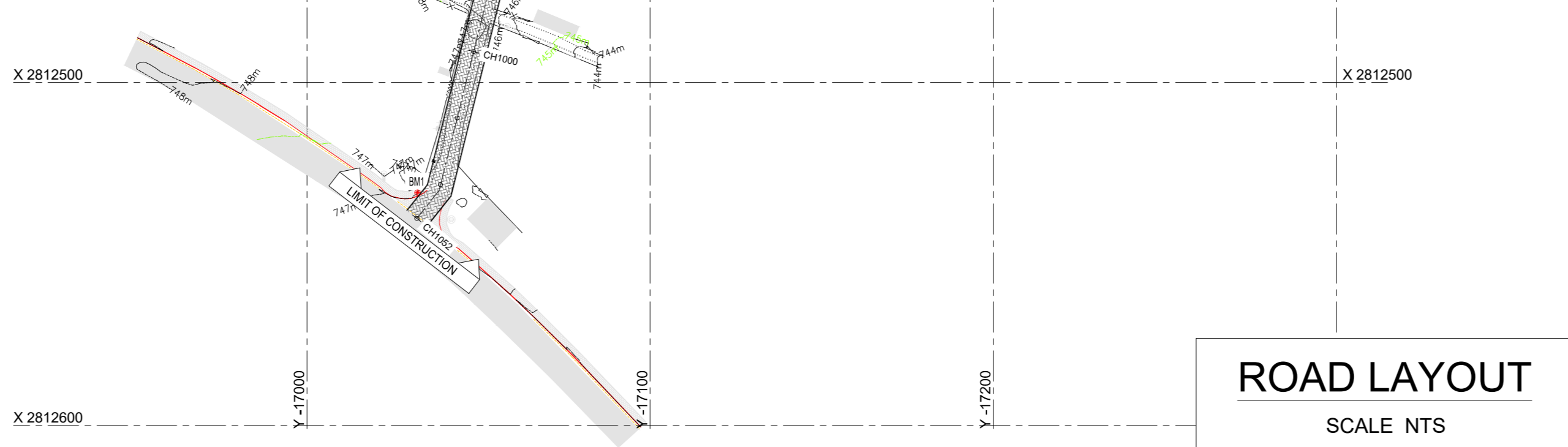


**LEGEND:**

- PROPOSED ROAD
- EXISTING TARRER ROAD
- EXISTING PAVED ROAD
- GRAVEL ROAD
- GCONTOUR
- MCONTOUR
- EXISTING SEWER PIPE
- EXISTING 20mm WATER PIPE
- EXISTING CULVERT PIPE
- EXISTING SURVEY V-DRAIN
- EXISTING SEWER MANHOLE
- FENCE
- GATE
- POWERPOLE
- POWERLINE LV
- POWERLINE MV
- TELEPHONE LINE
- LAMP POST
- ROAD SIGN
- WATER MANHOLE
- WATER VALVE
- SIGN BOARD
- WATER METER
- TREE
- MARULA TREE
- BENCHMARK
- PROPOSED V-DRAIN

**BENCHMARKS (WG SYSTEM)**

POINT	Y	X	Z	MARKER
BM1	-17032.240	+2812532.177	747.029	12MM IRON PEG
BM2	-17090.480	+2812297.905	747.127	12MM IRON PEG
BM3	-16970.072	+2812086.604	758.015	12MM IRON PEG
BM4	-17069.555	+2812059.008	750.566	12MM IRON PEG
BM5	-17355.363	+2811944.459	723.555	12MM IRON PEG
BM6	-17479.069	+2811801.209	714.842	12MM IRON PEG

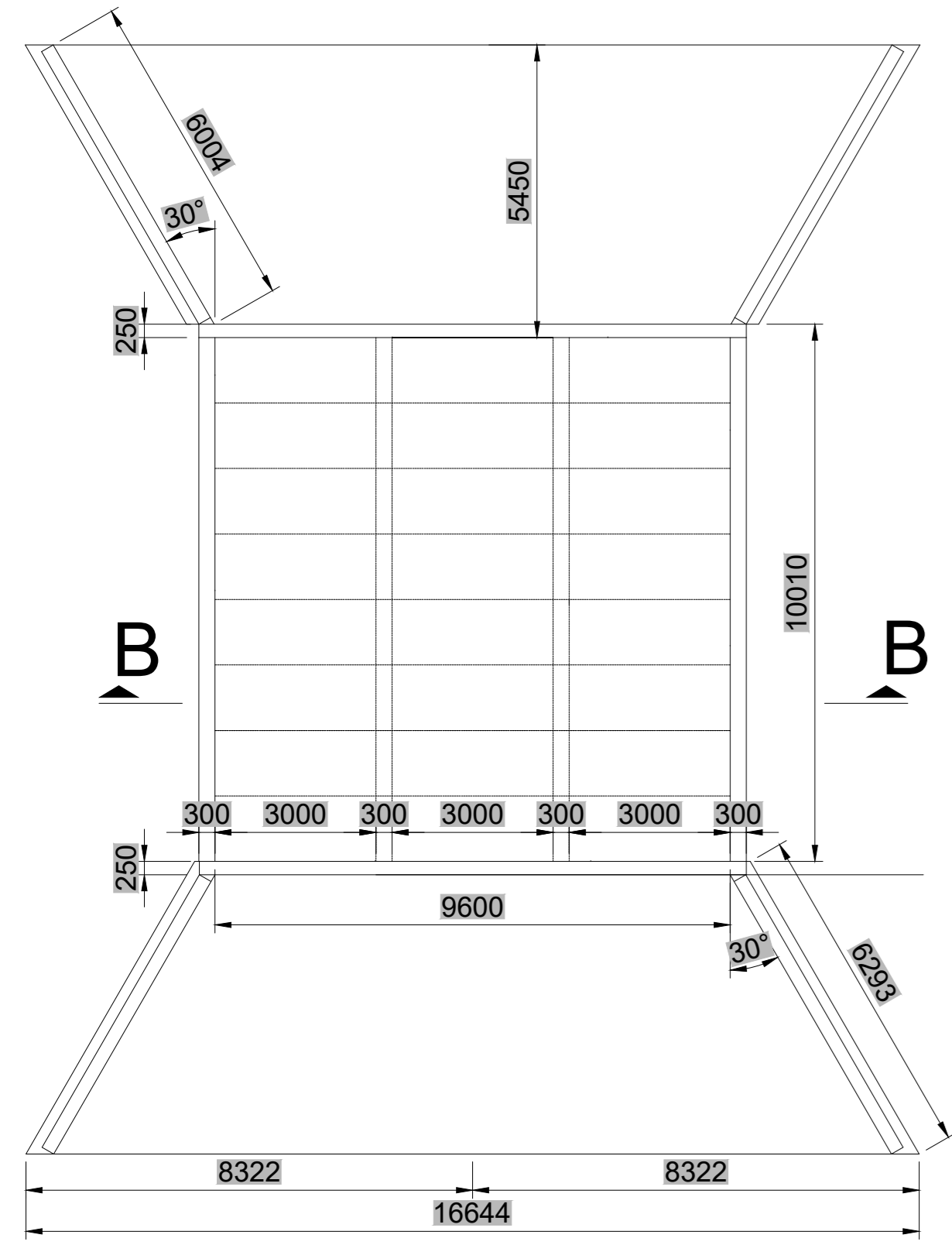


TENDER

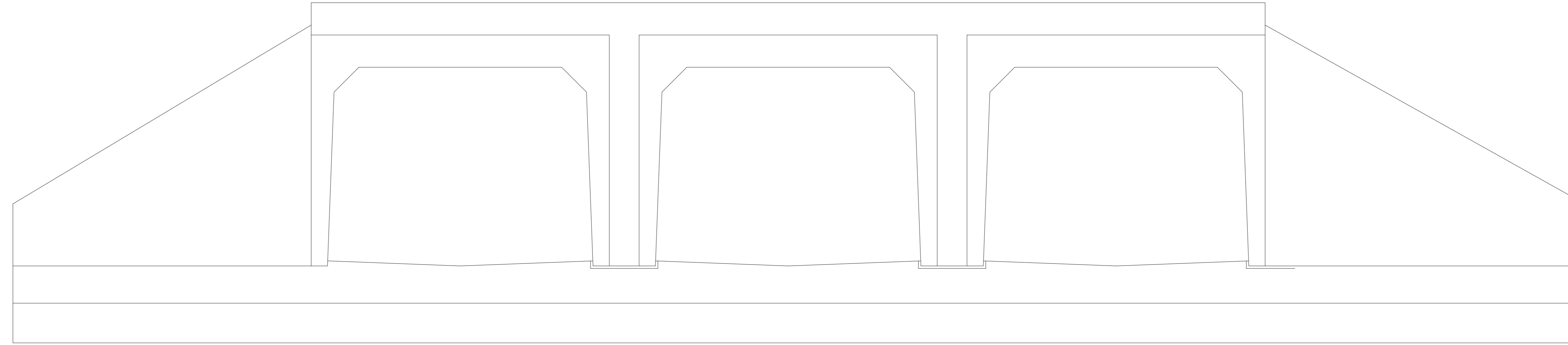
DRAWING CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b>  <b>GILA GROUP (PTY) LTD</b>  24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za
DRAWN BY:	N. JIYANE	
DESIGN CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	
DESIGNED BY:	T. MAGAGULA Pr Tech Eng : 2019300647	

<b>CLIENT</b>		
<b>CITY OF MBOMBELA</b>		
 1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	 P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111	

<b>CONTRACT NUMBER:</b>		SCALE: AS SHOWN
PROJECT SAWOTINI ROAD		DATE: JULY 2026
DESCRIPTION		REVISION B
OVERALL ROAD LAYOUT		DRAWING NO: GG-2026-RD-U000



3 X 2500 X 2000 CULVERTS  
INLET AND OUTLET PLAN  
SCALE: 1:100



4 X 2500 X 2000 CULVERTS  
INLET AND OUTLET ELEVATION  
SCALE: 1:100

**NOTES:**

**CONSTRUCTION**

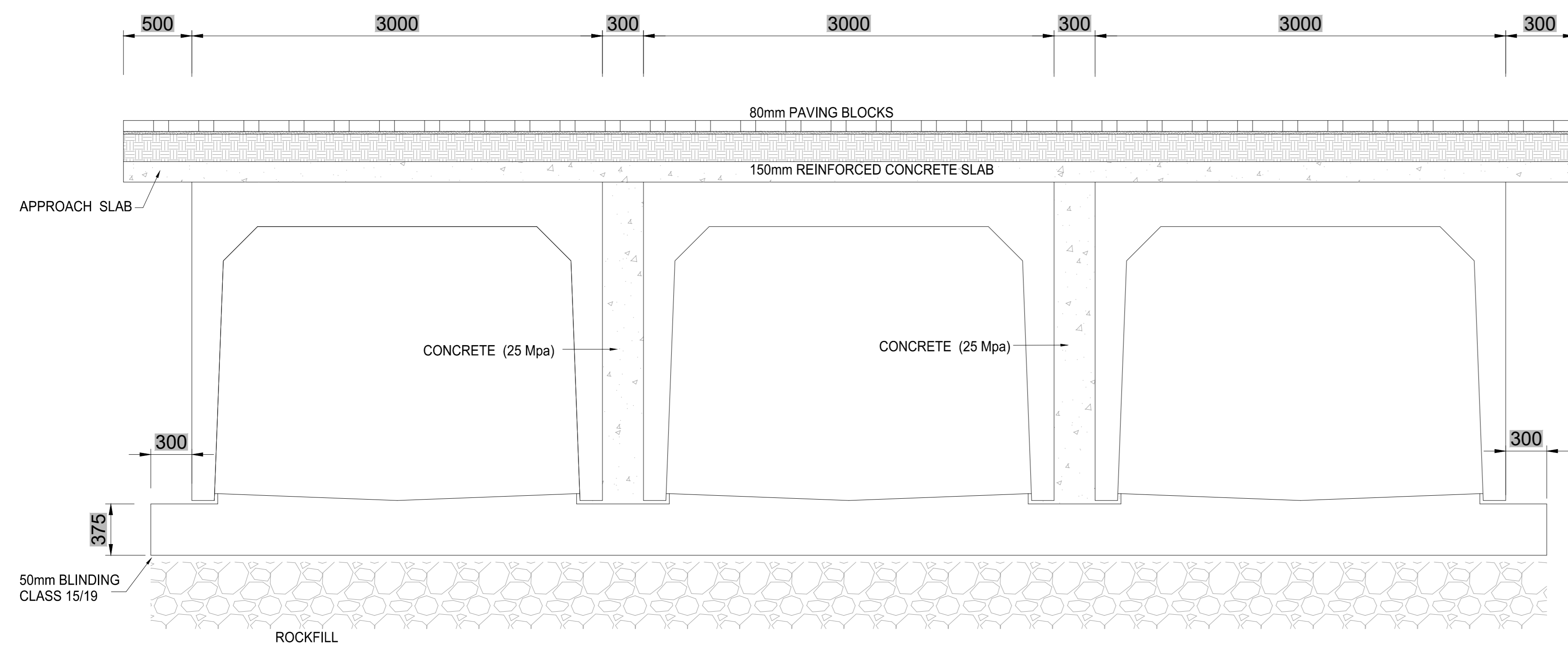
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 25 x 25
- CONCRETE COVER TO REINFORCEMENT:-  
FLOOR SLAB & FOOTINGS = 50mm  
WINGWALLS = 40mm
- CONCRETE FINISH:  
CONCEALED SURFACES = F1  
EXPOSED SURFACES = F2
- POLYETHYLENE SHEET 0.15mm THICK SHALL BE PLACED UNDER ALL WINGWALL FOOTINGS AND INLET SLAB
- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE COLTO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKS FOR STATE ROAD AUTHORITIES AS AMENDED TO DATE
- THE MAXIMUM SLOPE OF EARTHWORKS SURROUNDING A CULVERT INLET OR OUTLET SHALL BE 1 : 2

**MATERIAL SPECIFICATION:**

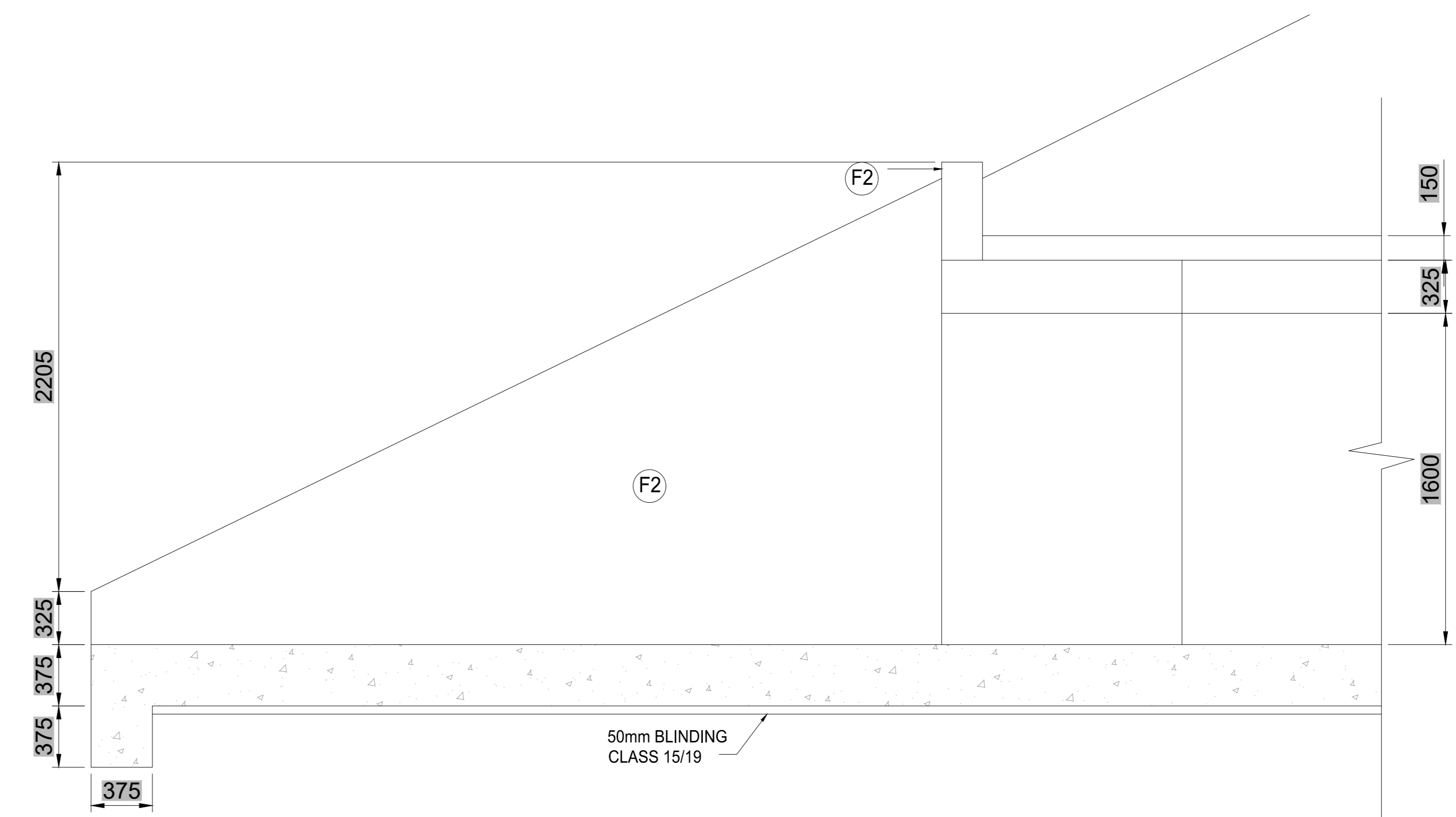
- INLET/OUTLET CONCRETE SLABS AND WINGWALLS - CLASS 25/19  
CHARACTERISTIC STRENGTH 25 MPa
- REINFORCEMENT (SABS 920 - 1985)  
YIELD STRENGTH TYPE:  
MILD STEEL BARS = 250 MPa  
HIGH TENSILE STEEL BARS = 450 MPa  
WELDED STEEL FABRIC = 450 MPa
- REINFORCEMENT DETAILS:  
a) SEE DRG. No. S

**FOUNDING MATERIAL:**

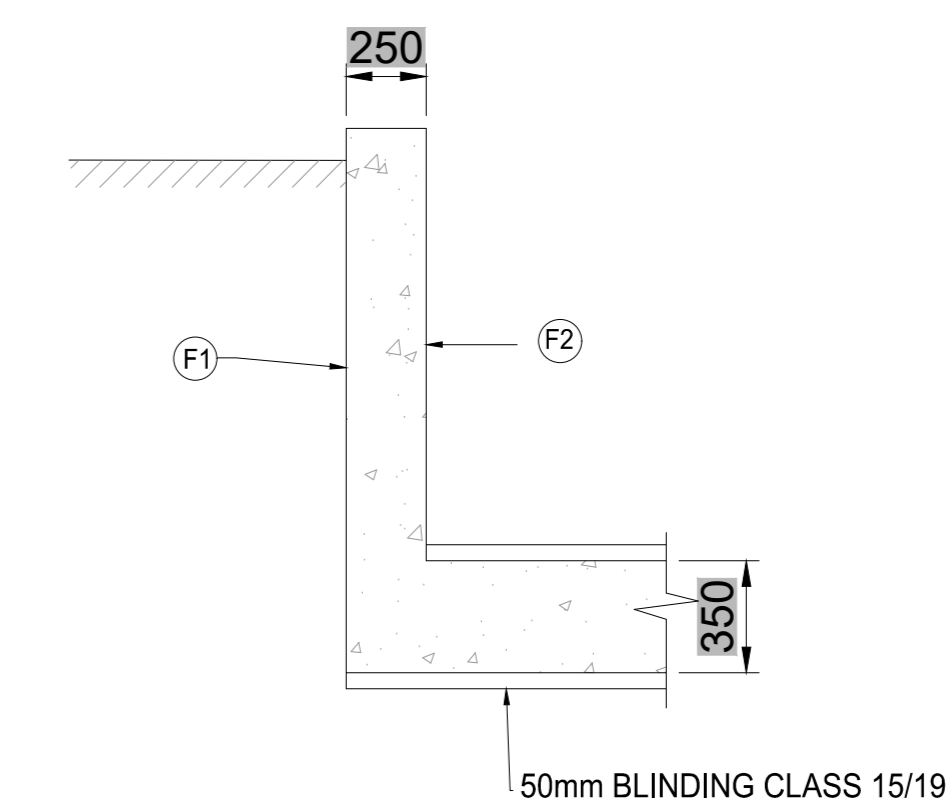
- FOUNDING LEVEL TO BE APPROVED BY THE ENGINEER ON SITE.



3 X 2500 X 1500 CULVERTS  
SECTION B-B  
SCALE: 1:100



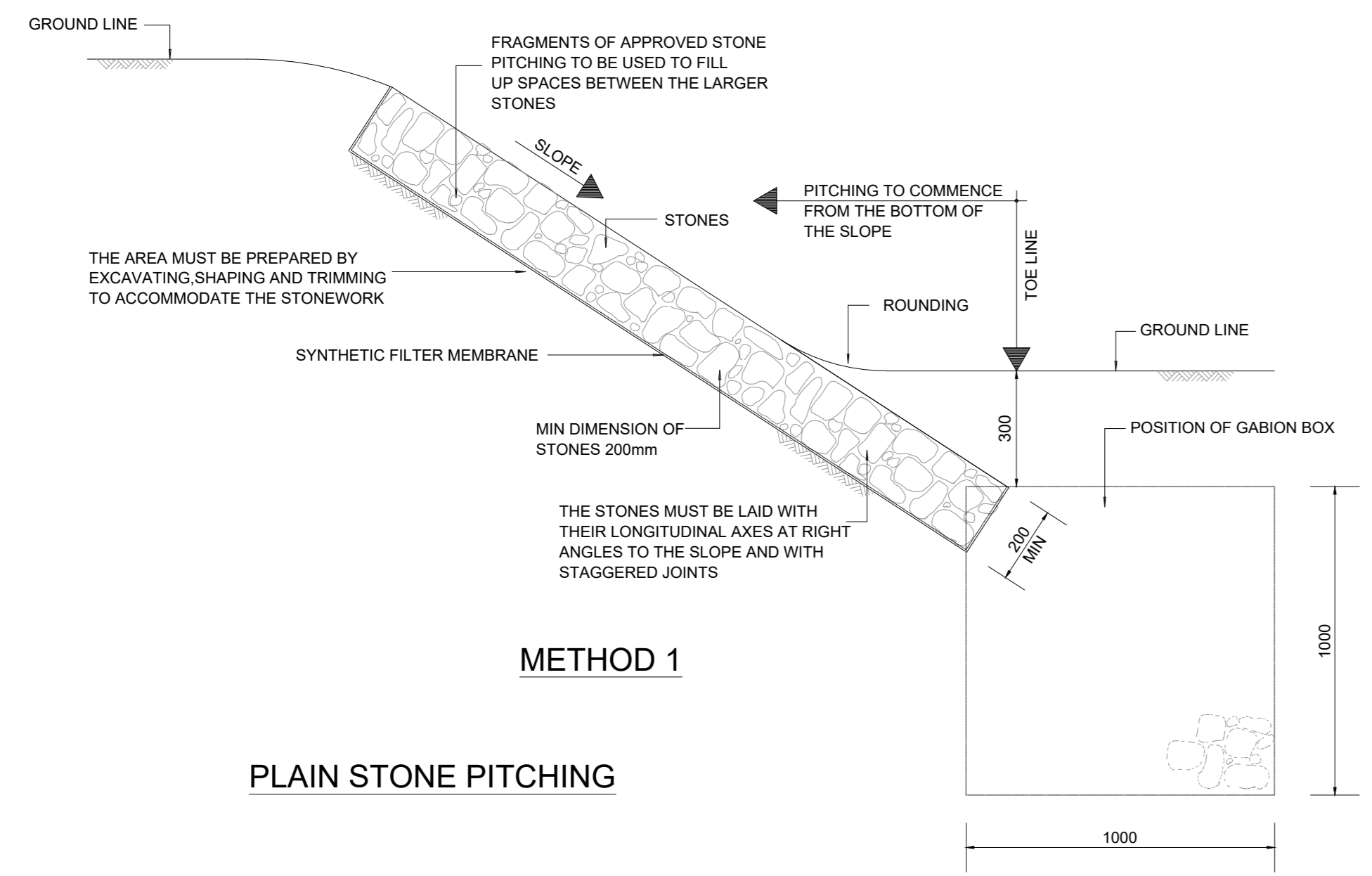
SECTION B - B  
SCALE: 1:25



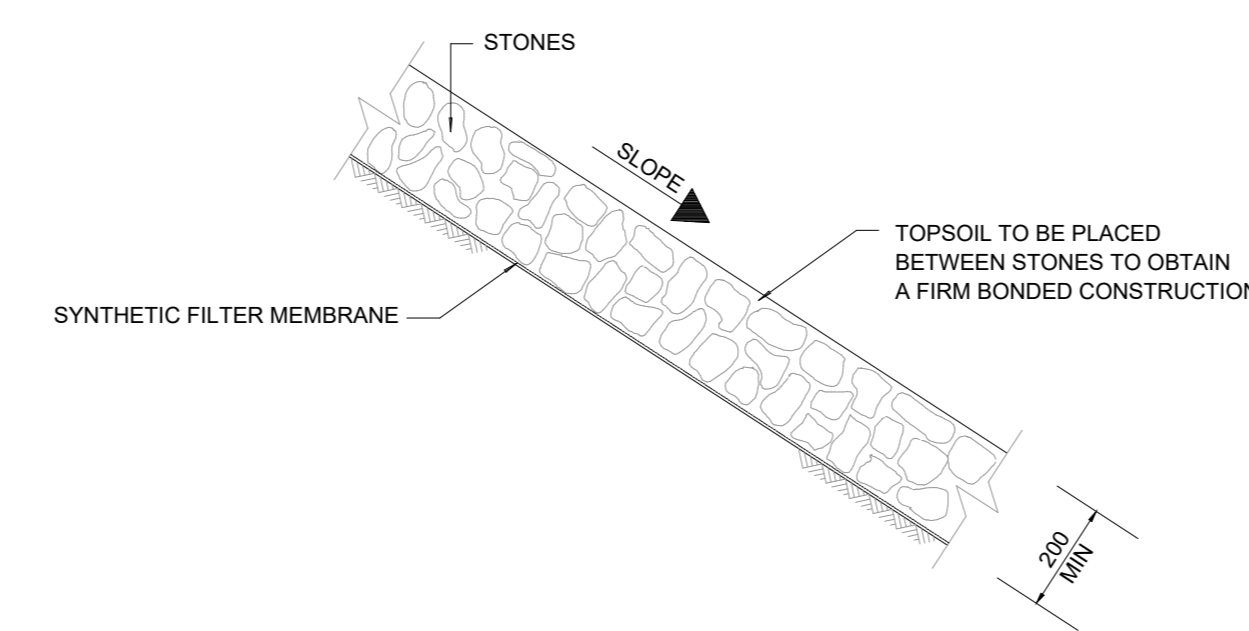
SECTION C - C  
SCALE: 1:25

TENDER

DRAWING CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	CONSULTANT GILA GROUP (PTY) LTD	CLIENT CITY OF MBOMBELA	CONTRACT NUMBER: PROJECT SAWOTINI ROAD	SCALE: AS SHOWN
DRAWN BY: N. JIYANE	24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za	1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	DESCRIPTION CULVERTS DETAILS	DATE: JULY 2026
DESIGN CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647		P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111		REVISION B
DESIGNED BY:				DRAWING NO: GG-2026-R-SD-05

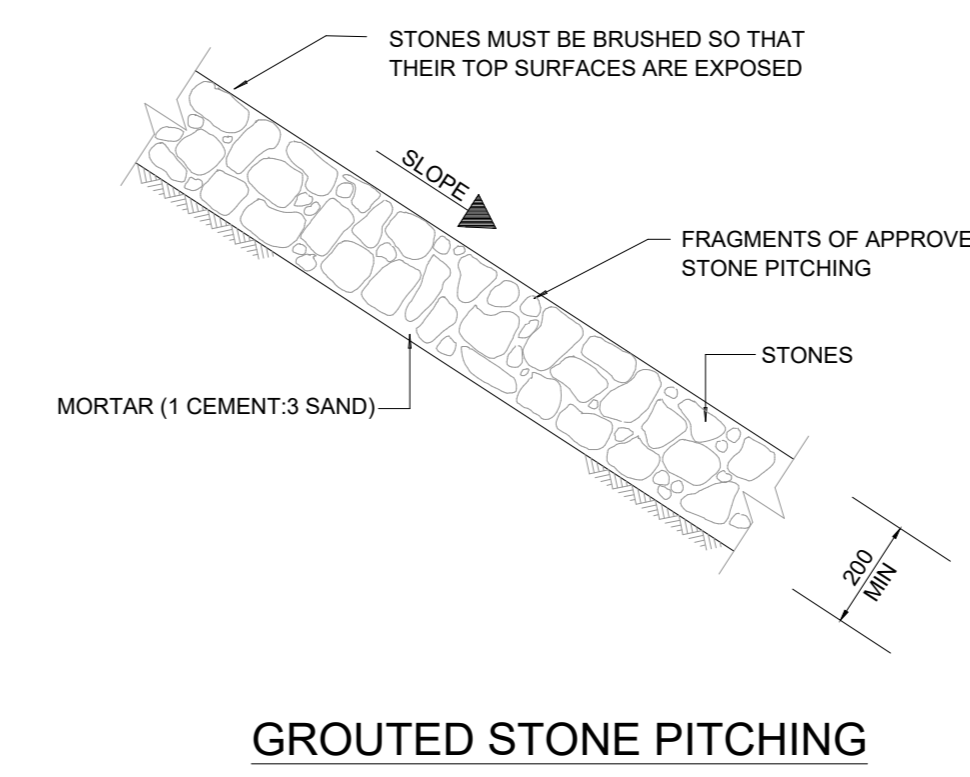


**METHOD 1**  
**PLAIN STONE PITCHING**



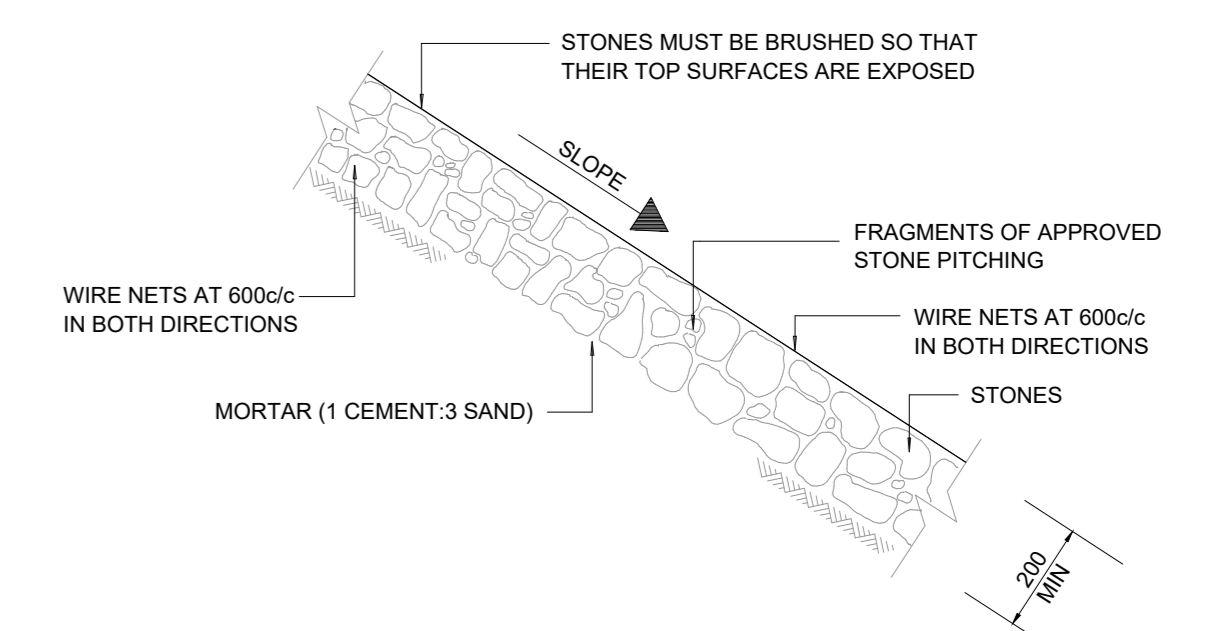
**METHOD 2**

**NOTES:**  
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:  
1. NO SMALL STONES SHALL BE USED TO FILL THE SPACES BETWEEN THE LARGER STONES.  
2. TOPSOIL SHALL BE INTRODUCED BETWEEN INDIVIDUAL STONES SIMULTANEOUSLY WITH PLACING OF STONES.  
3. ROOTED GRASS OR GRASS TUFTS SHALL THEN BE PLACED IN THE TOPSOIL.



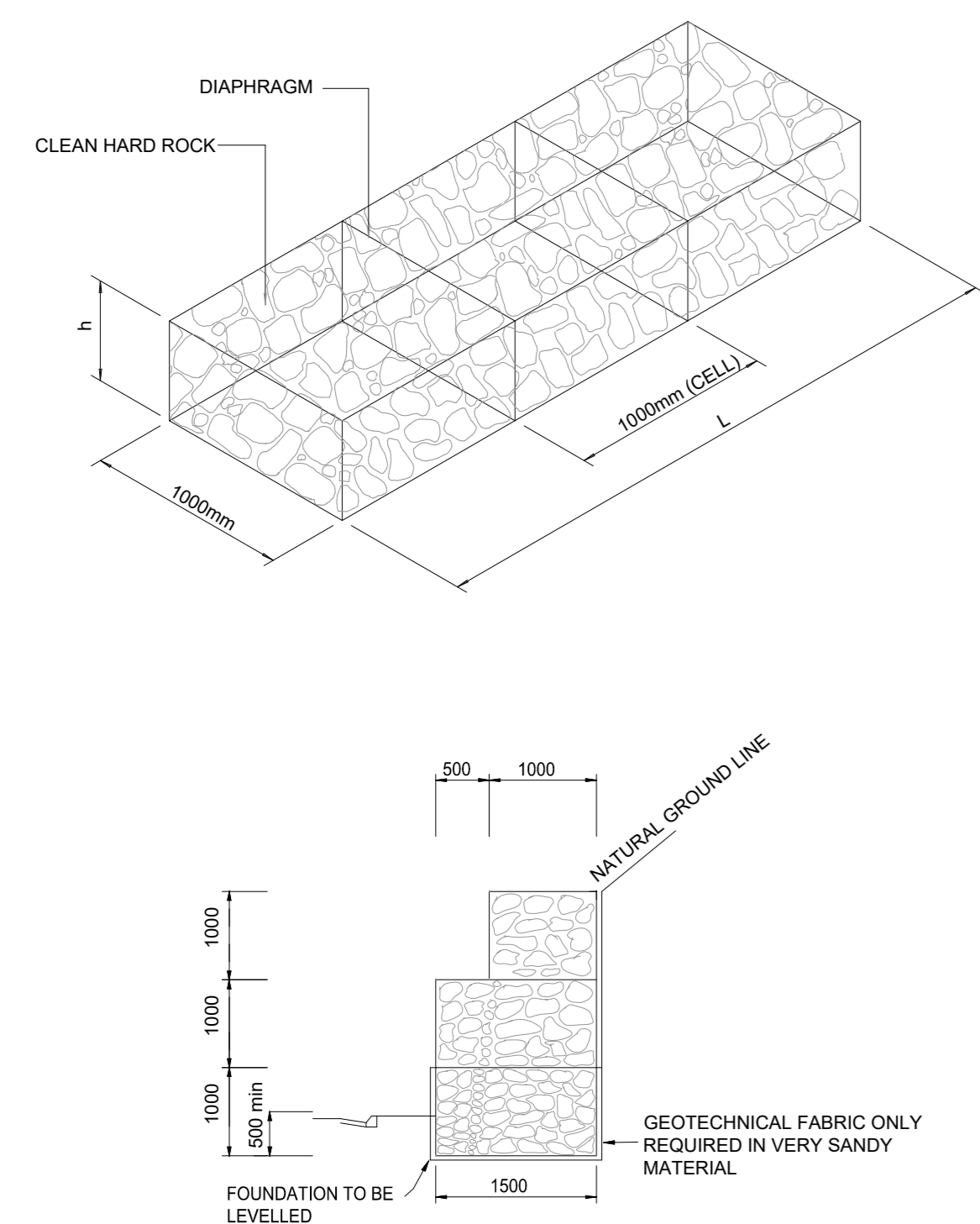
**GROUTED STONE PITCHING**

**NOTES:**  
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTION:  
1. THE SPACES BETWEEN THE STONES SHALL BE FILLED WITH MORTAR.

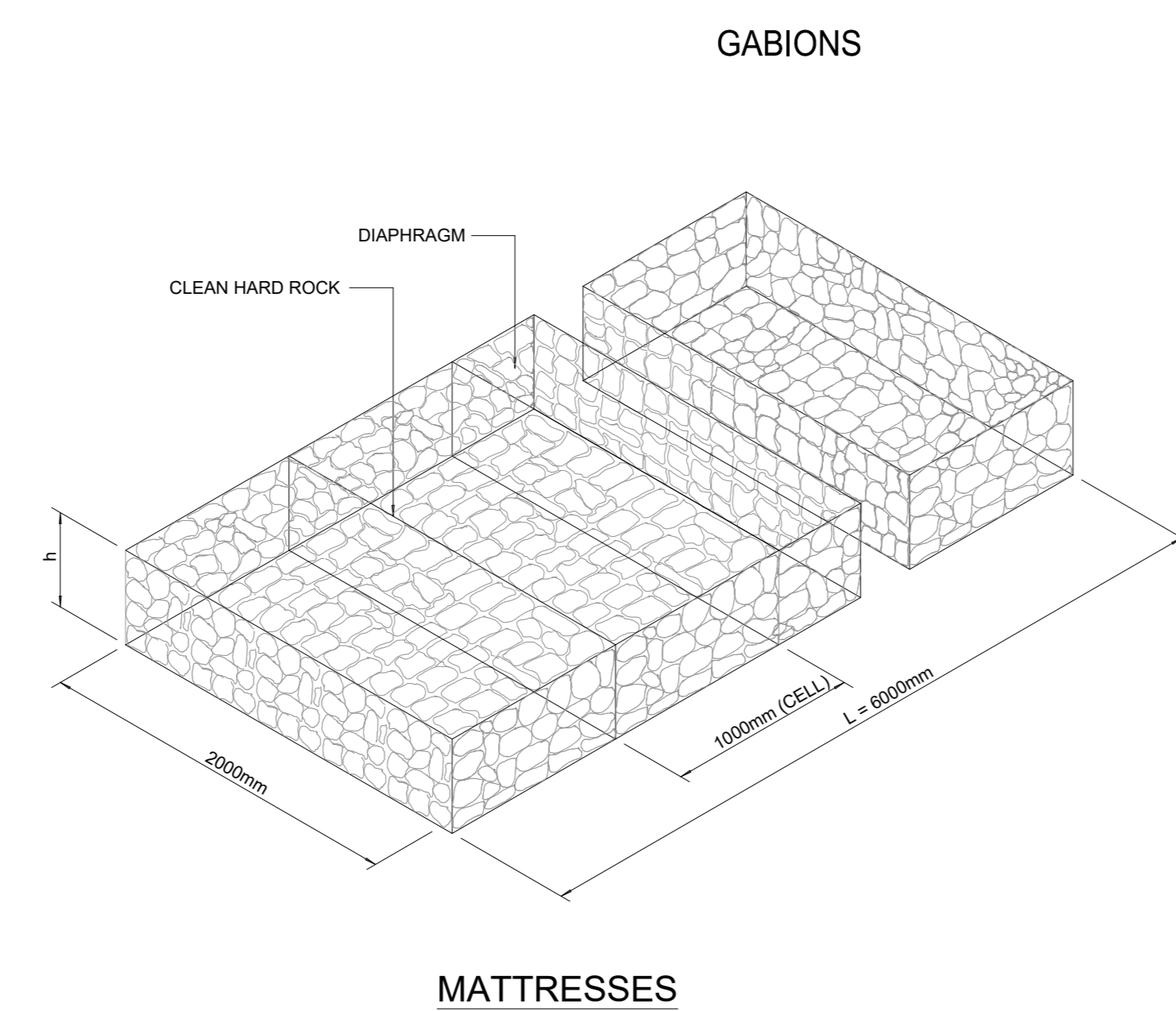


**WIRE AND GROUTED STONE PITCHING**

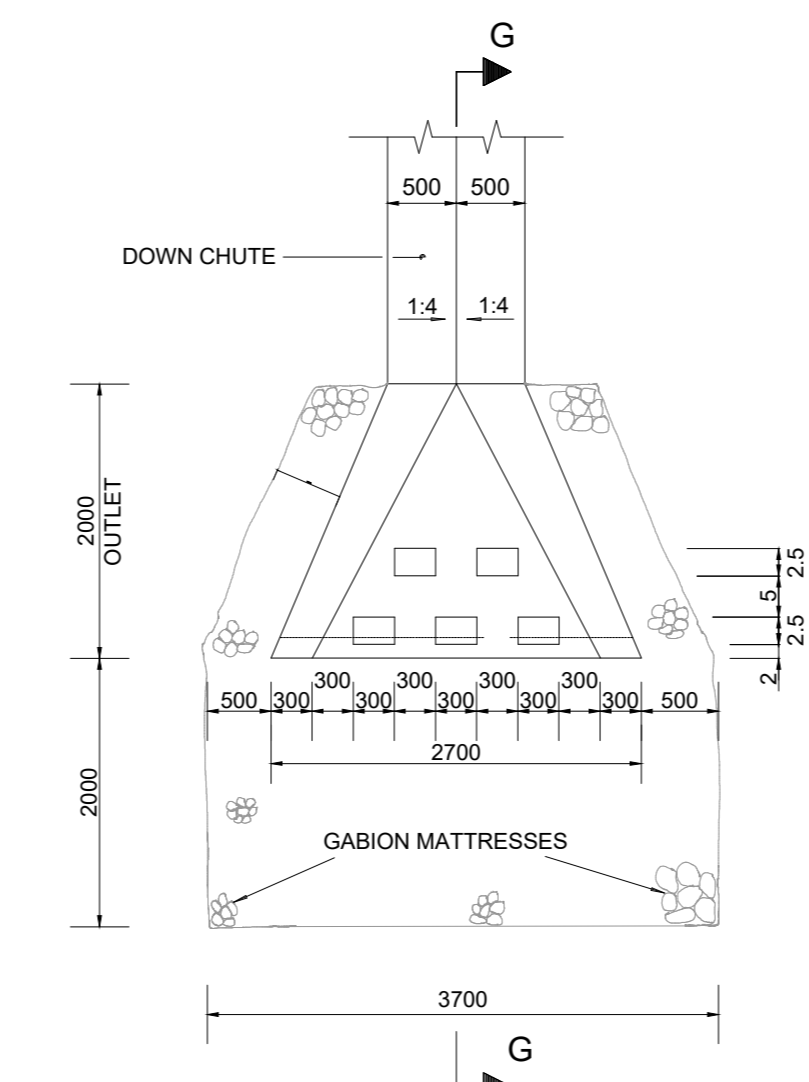
**NOTES:**  
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:  
1. PITCHING IN ACCORDANCE WITH GROUTED STONE PITCHING.  
2. CONSTRUCTION SHALL BE AS FOLLOWS:  
a) PLACING OF BOTTOM WIRE NET.  
b) ATTACHING OF WIRE TIES TO BOTTOM MESH.  
c) PITCHING.  
d) PLACING THE TOP WIRE NET AND FASTENING WIRE TIES.  
e) GROUTING.



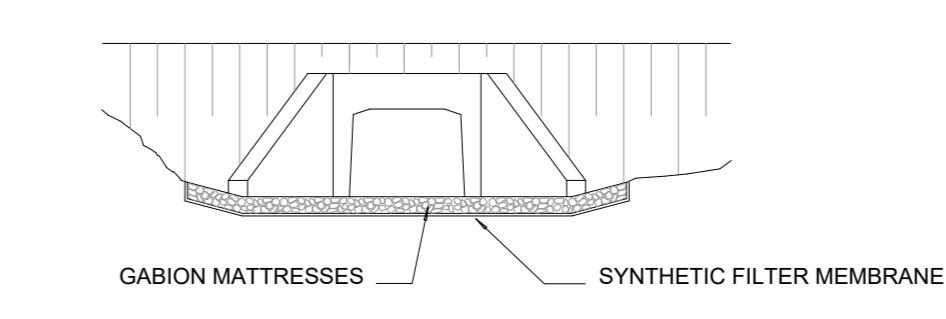
**3m GABION RETAINING WALL**



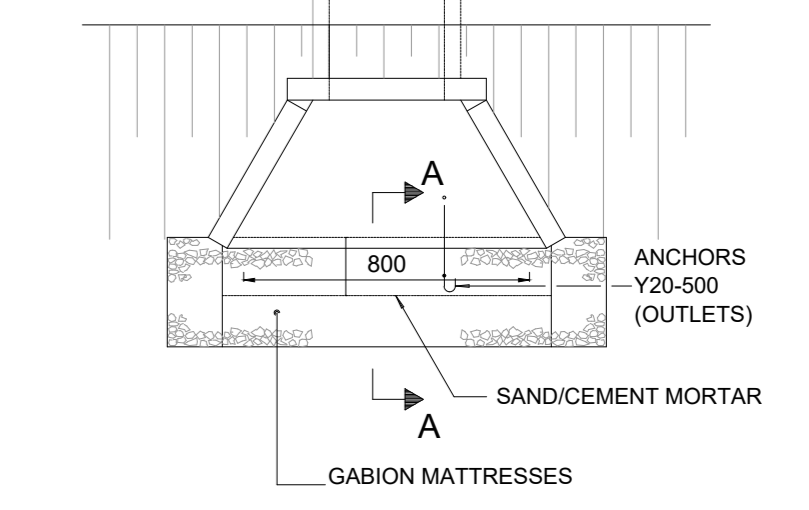
**MATTRESSES**



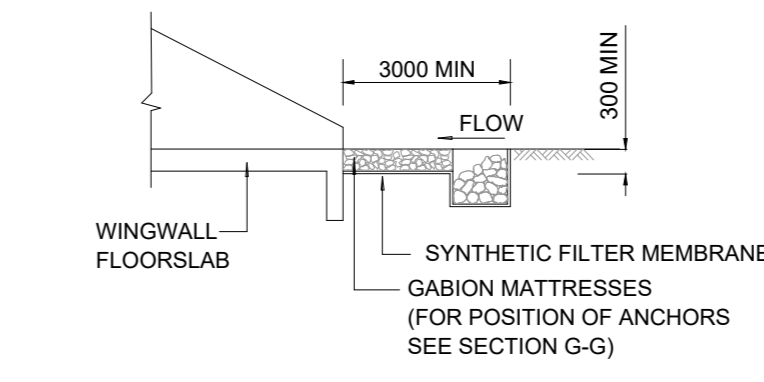
**PLAN OF DOWN CHUTE AND ENERGY BREAKER**



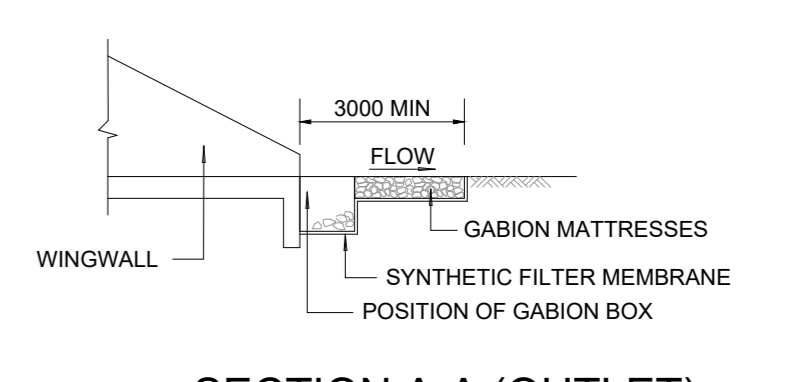
**ELEVATION OF INLET/OUTLET**



**PLAN OF INLET/OUTLET**



**SECTION A-A (INLET)**



**SECTION A-A (OUTLET)**

**DETAIL OF GABION MATTRESSES AND BOXES AT INLETS AND OUTLETS**

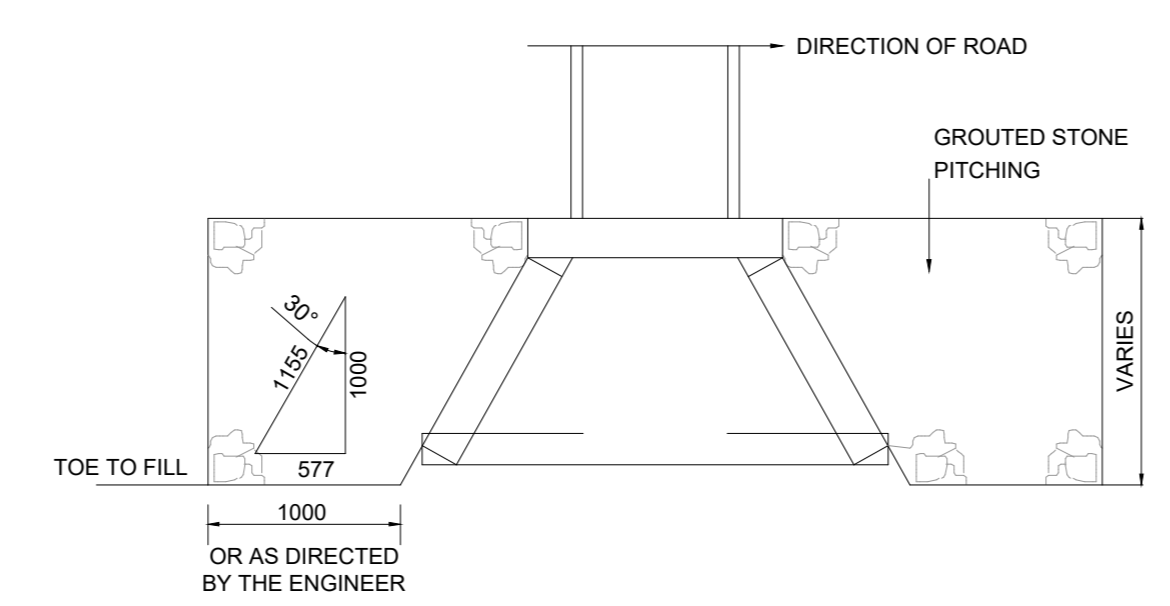
STANDARD SIZES OF BOXES	
LENGTH	1000mm, 2000mm, 3000mm, 4000mm
WIDTH	1000mm
DEPTH	500mm, 1000mm
DIAPHRAGM SPACING	1000mm

BOXES		
MESH SIZE AND WIRE DIAMETER FOR CAGES		
DEPTH OF GABION	MESH SIZE (mm)	WIRE DIA (mm)
500mm AND OVER	80 x 100	2.7
200mm TO 300mm	80 x 100	2.5

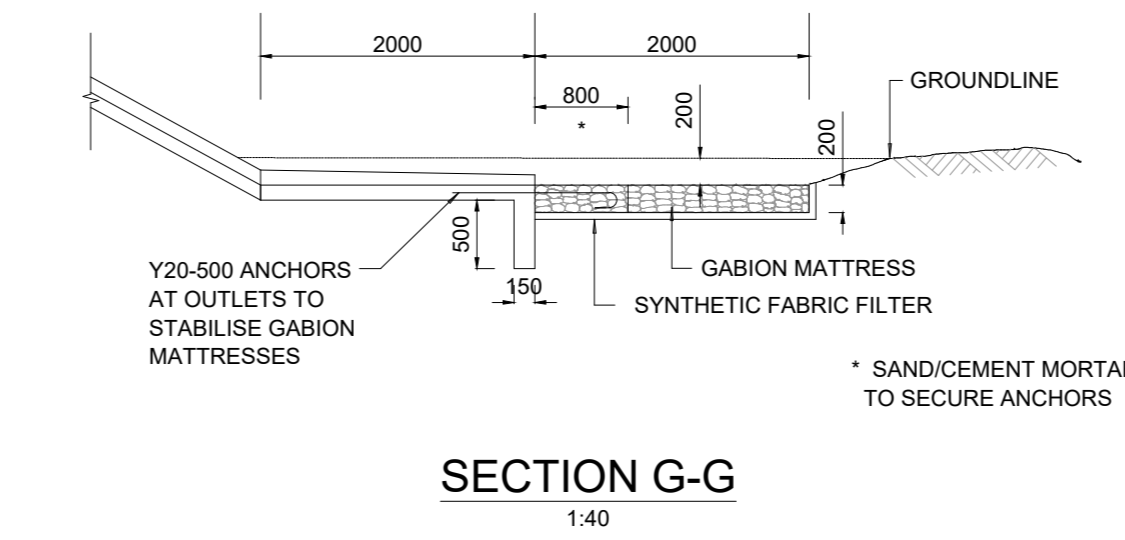
STANDARD SIZES	
LENGTH	6000mm
WIDTH	2000mm
DEPTH	170mm, 230mm, 300mm

ROCK USED FOR THE FILLING OF CAGES		
DEPTH OF CAGES	ROCK SIZE (DIMENSIONS)	MARKS (mm)
230	100	125
300	100	200
500	100	250
1000	100	300

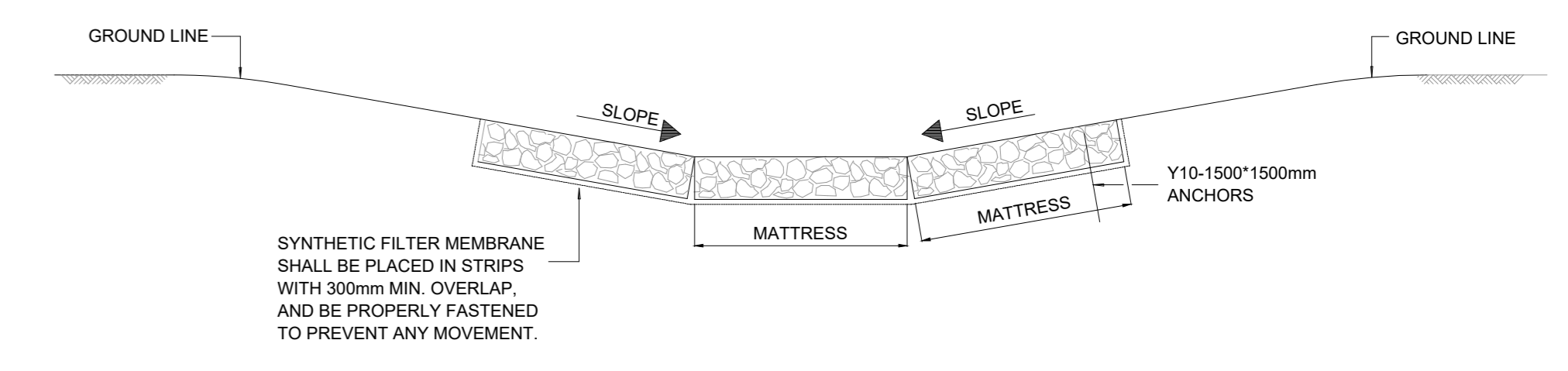
1.5m  
(i) Y10-1500\*1500mm  
(ii) Y20-500 (OUTLETS)  
ANCHORS FOR GABION MATTRESSES



**TYPICAL DETAIL OF GROUTED STONE PITCHING ADJACENT TO WINGWALLS**



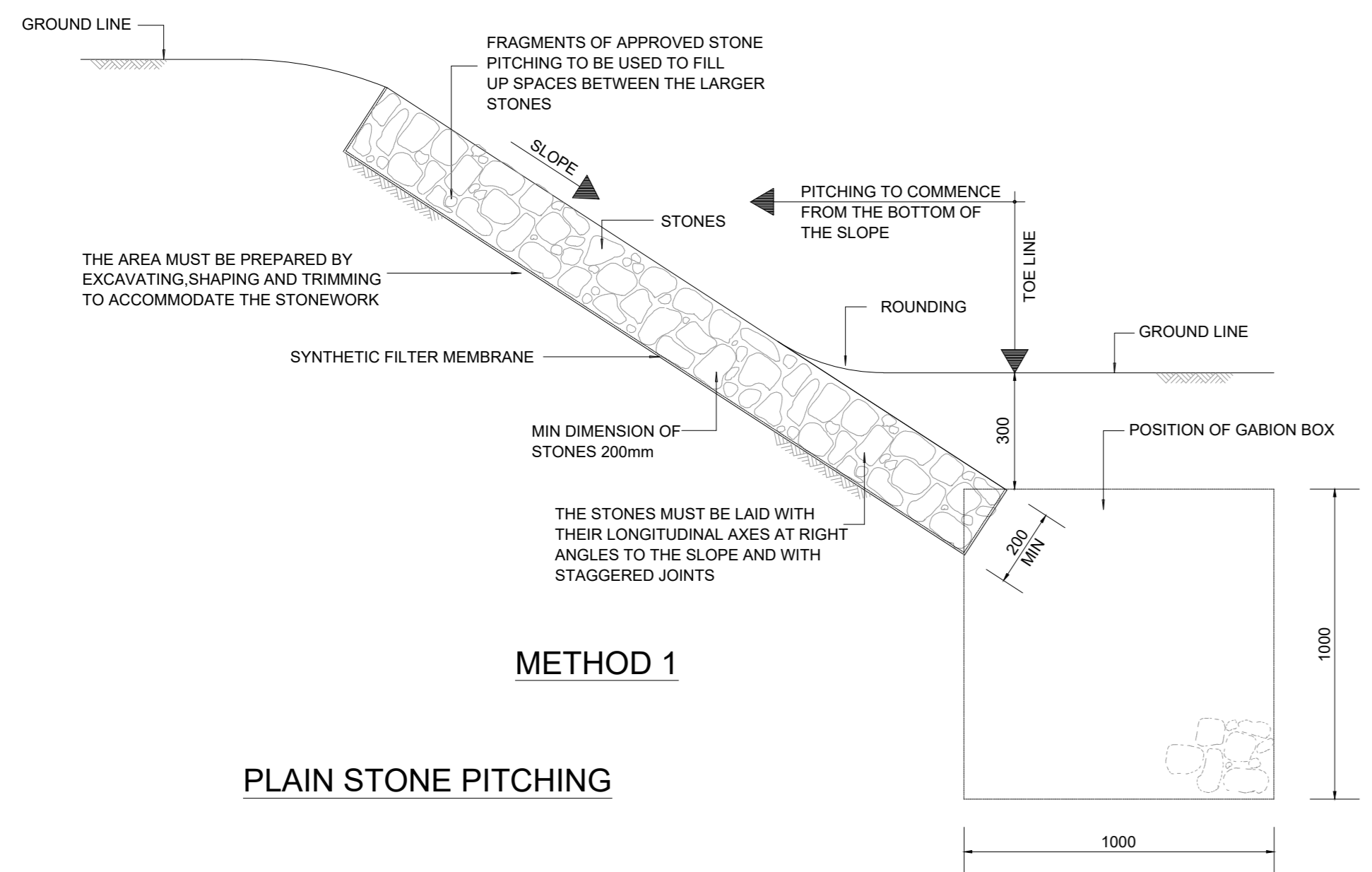
**SECTION G-G**



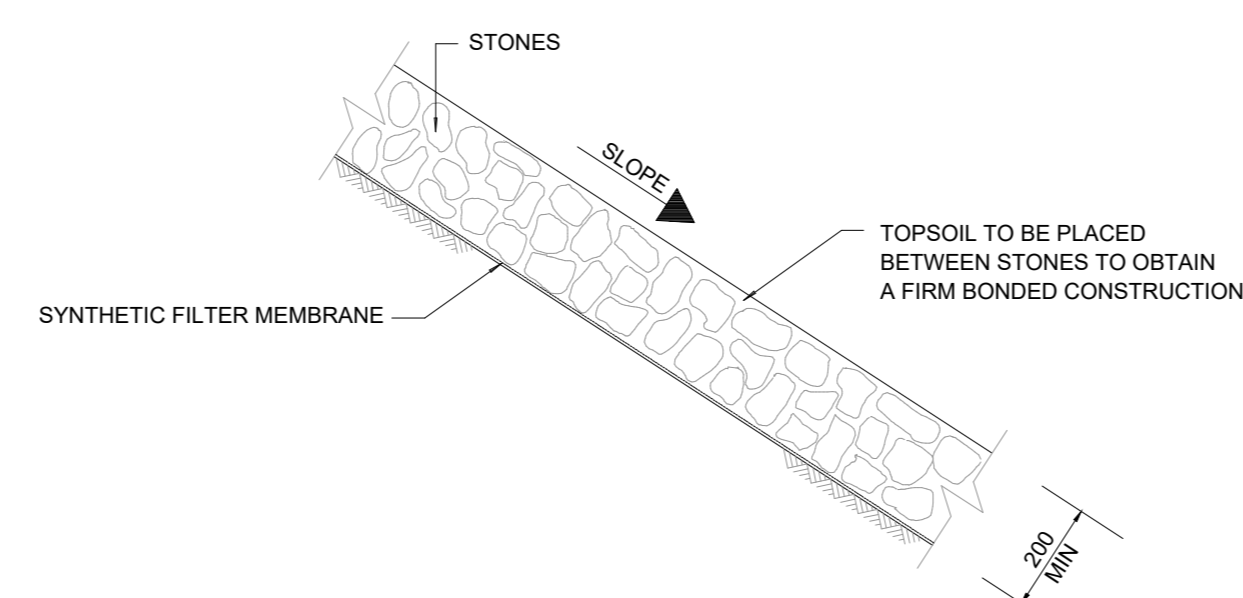
**SECTION OF MATTRESS IN CANAL**

**TENDER**

DRAWING CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD 24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za	<b>CLIENT</b> CITY OF MBOMBELA 1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	<b>CONTRACT NUMBER:</b> PROJECT EMLOTSHWENI ROAD DESCRIPTION GABIONS AND STONE PITCHING DETAILS	SCALE: AS SHOWN
DRAWN BY: N. JIYANE				DATE: JULY 2026
DESIGN CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	 EXCELLENCE QUALITY INTEGRITY	 THE ULTIMATE GENERATION	 THE ULTIMATE GENERATION	REVISION B
DESIGNED BY:				DRAWING NO: GG-2026-RD-06

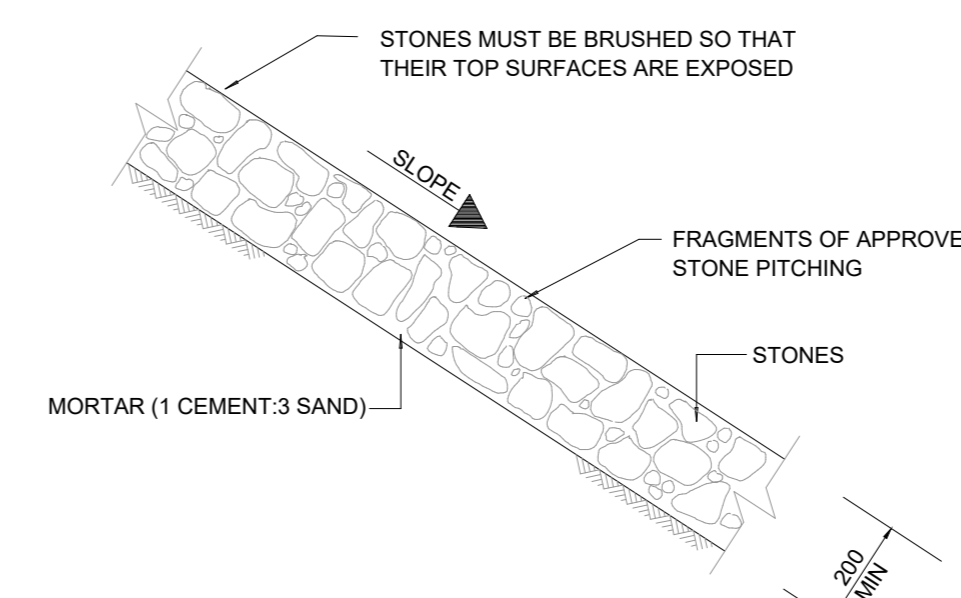


**METHOD 1**  
**PLAIN STONE PITCHING**



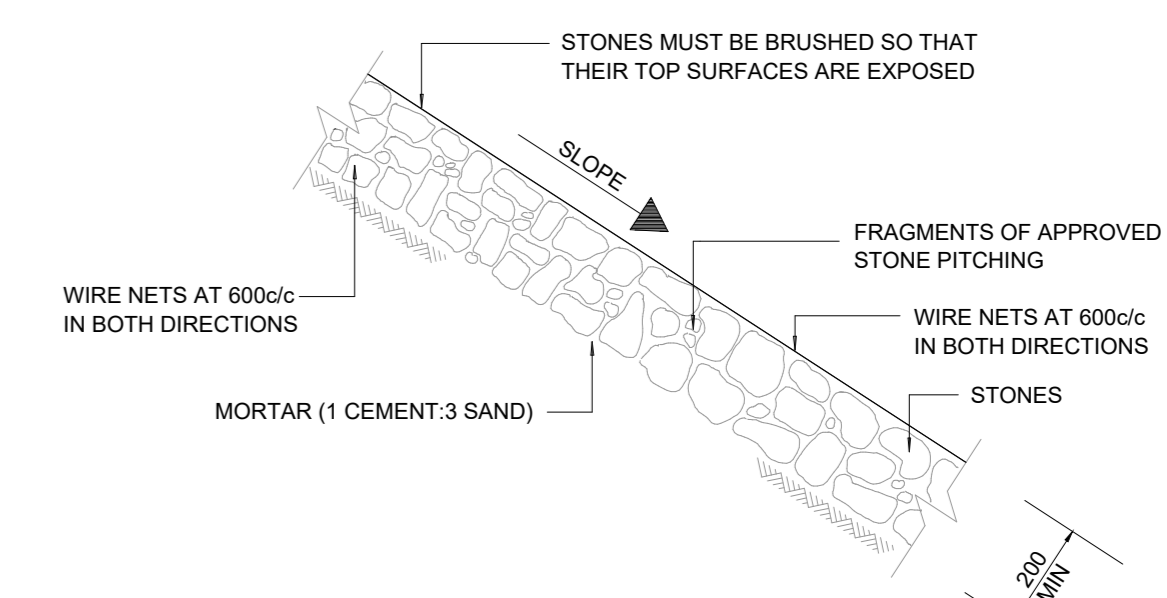
**METHOD 2**

**NOTES:**  
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:  
1. NO SMALL STONES SHALL BE USED TO FILL THE SPACES BETWEEN THE LARGER STONES.  
2. TOPSOIL SHALL BE INTRODUCED BETWEEN INDIVIDUAL STONES SIMULTANEOUSLY WITH PLACING OF STONES.  
3. ROOTED GRASS OR GRASS TUFTS SHALL THEN BE PLACED IN THE TOPSOIL.



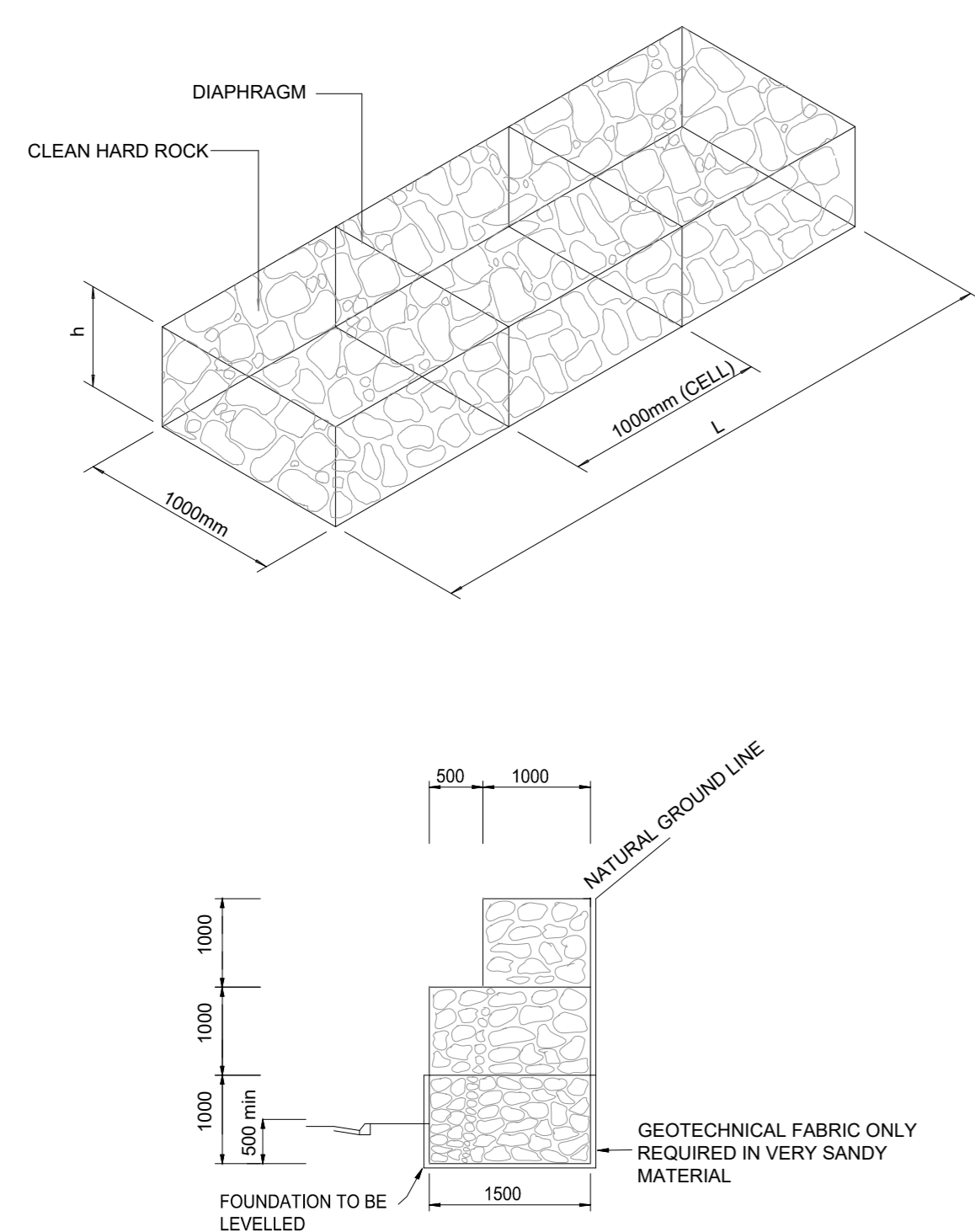
**GROUTED STONE PITCHING**

**NOTES:**  
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTION:  
1. THE SPACES BETWEEN THE STONES SHALL BE FILLED WITH MORTAR.

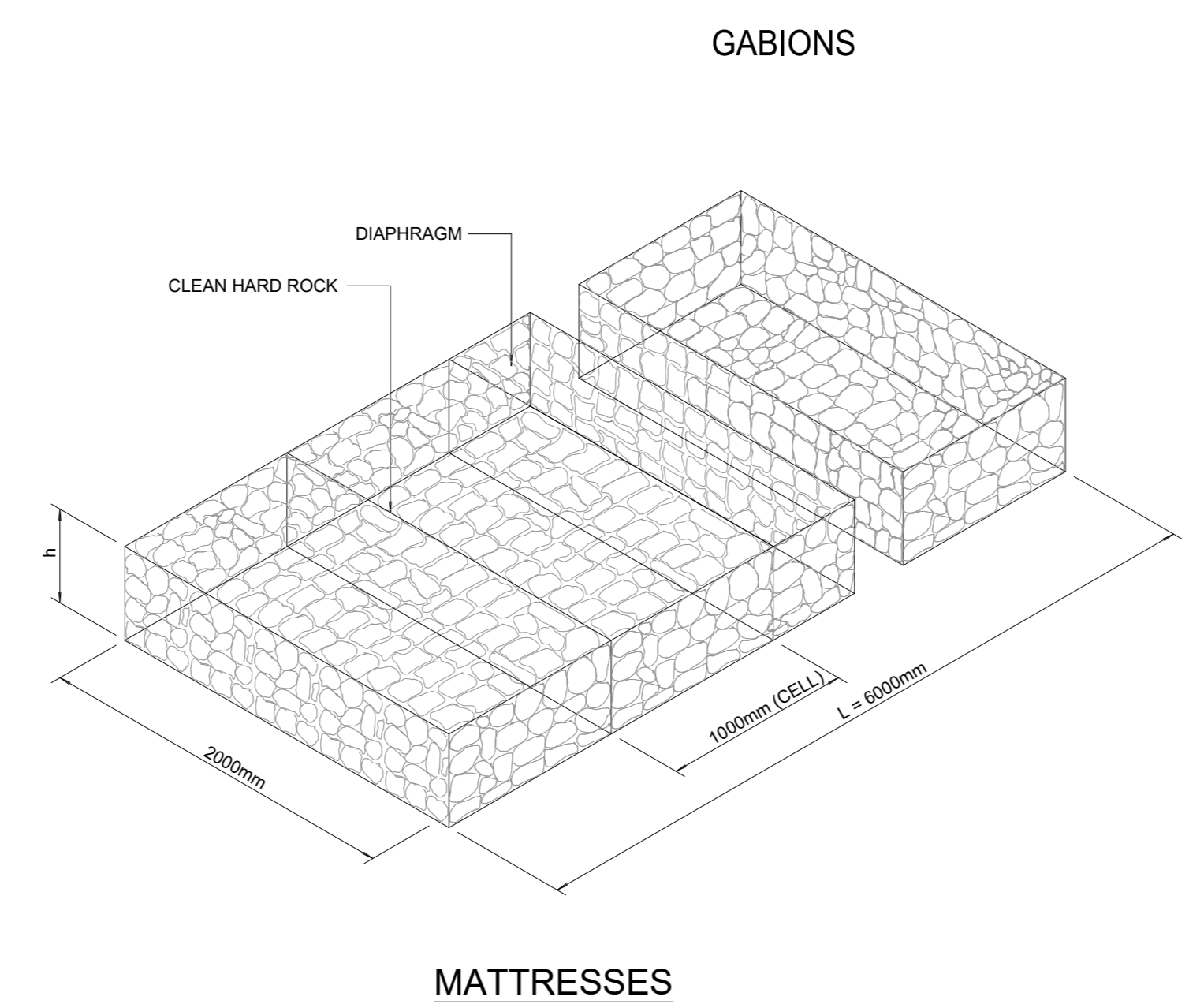


**WIRE AND GROUTED STONE PITCHING**

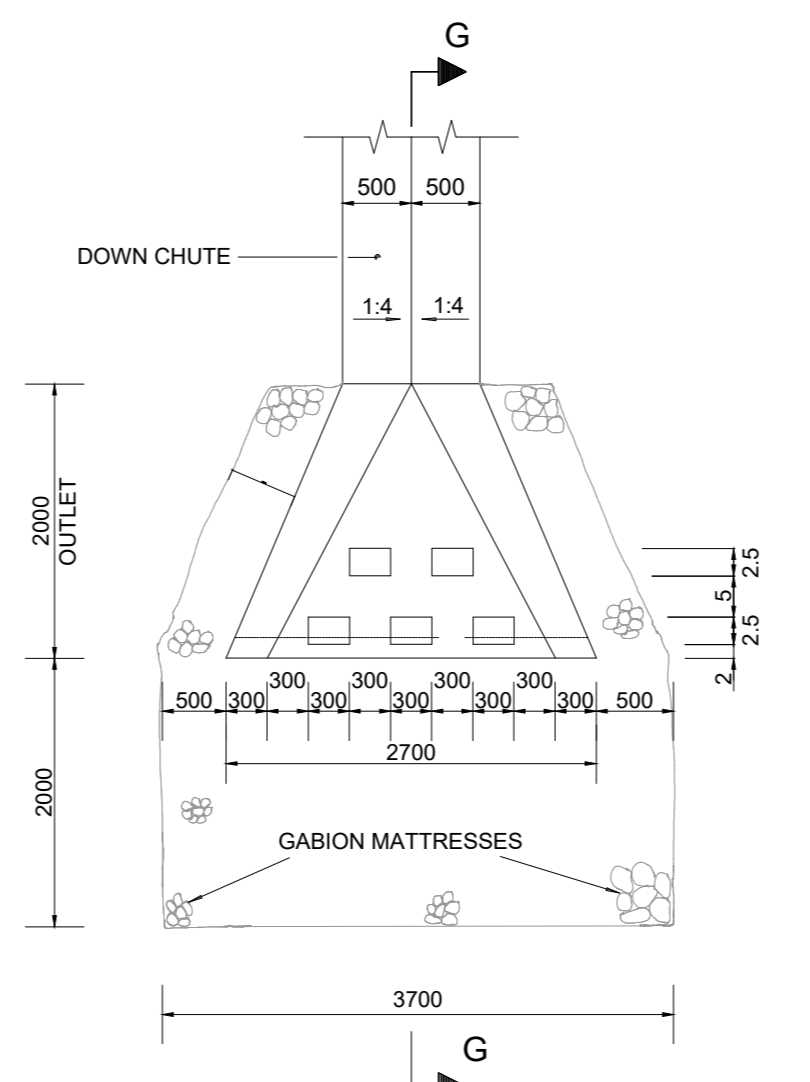
**NOTES:**  
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:  
1. PITCHING IN ACCORDANCE WITH GROUTED STONE PITCHING.  
2. CONSTRUCTION SHALL BE AS FOLLOWS:  
a) PLACING OF BOTTOM WIRE NET.  
b) ATTACHING OF WIRE TIES TO BOTTOM MESH.  
c) PITCHING.  
d) PLACING THE TOP WIRE NET AND FASTENING WIRE TIES.  
e) GROUTING.



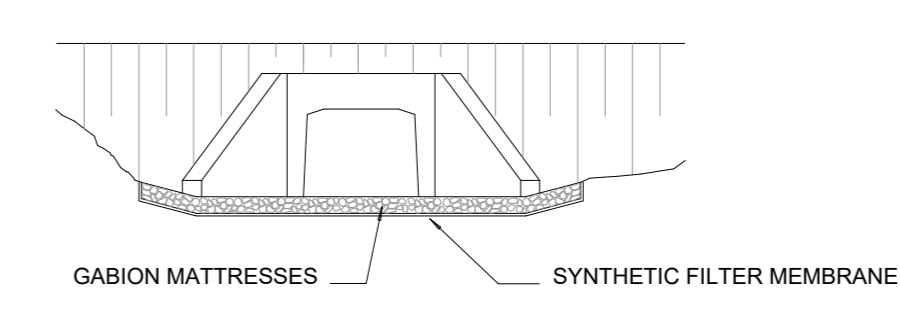
**3m GABION RETAINING WALL**



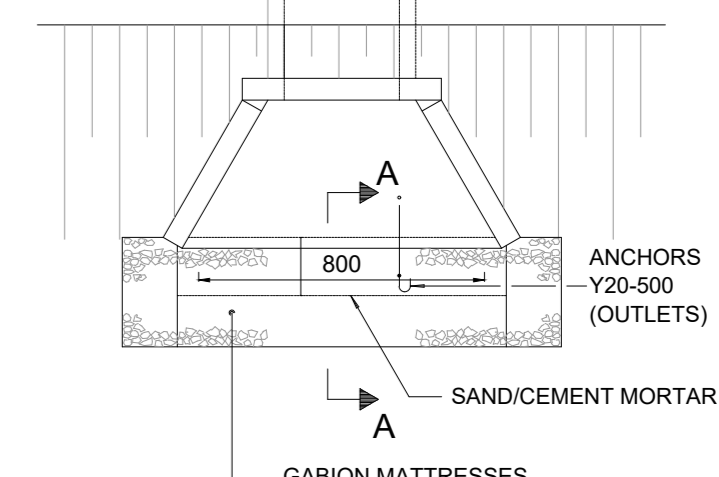
**MATTRESSES**



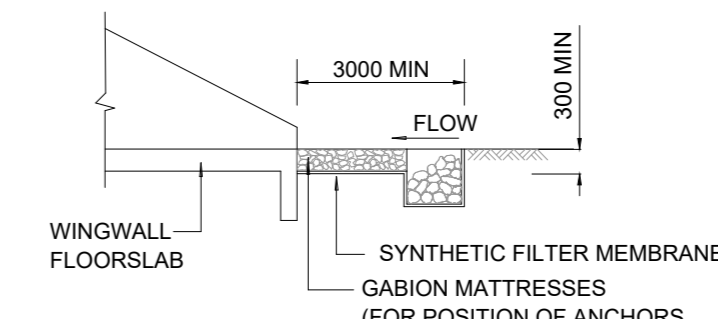
**PLAN OF DOWN CHUTE AND ENERGY BREAKER**



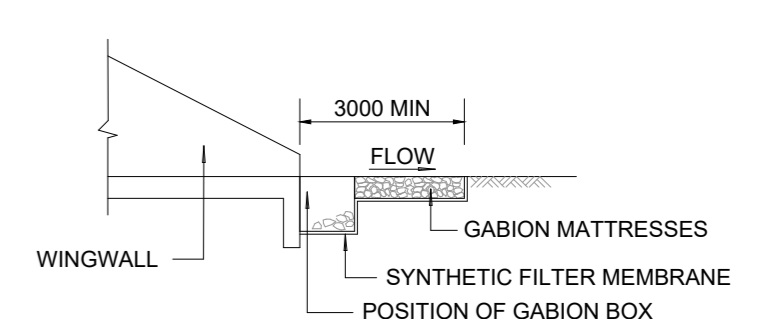
**ELEVATION OF INLET/OUTLET**



**PLAN OF INLET/OUTLET**



**SECTION A-A (INLET)**



**SECTION A-A (OUTLET)**

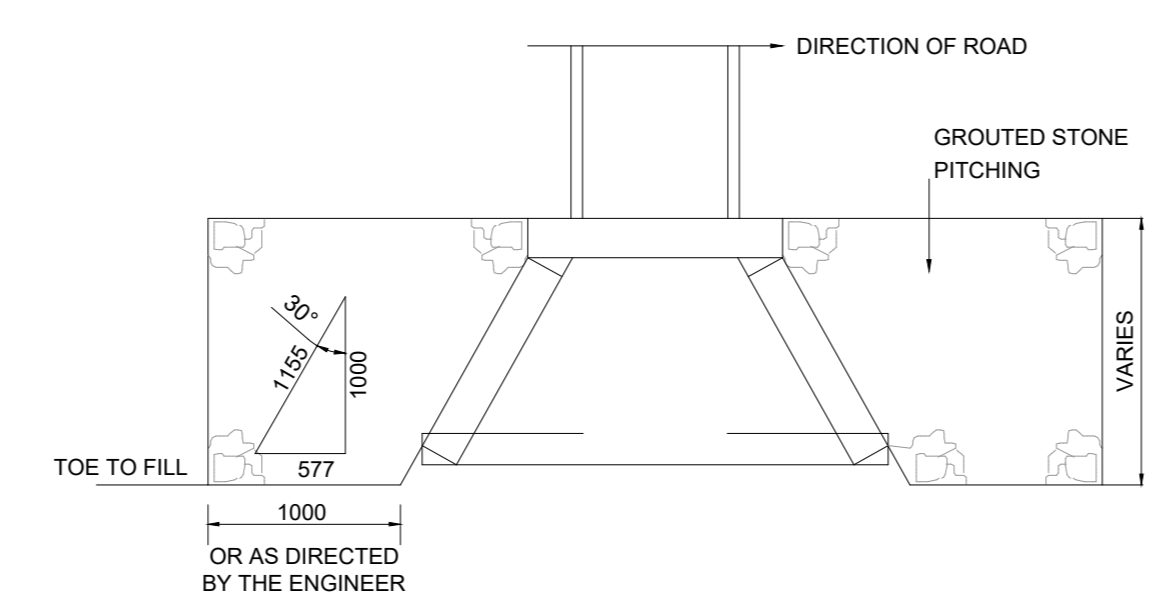
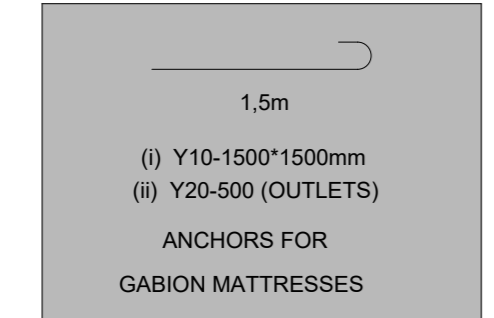
**DETAIL OF GABION MATTRESSES AND BOXES AT INLETS AND OUTLETS**

STANDARD SIZES OF BOXES	
LENGTH	1000mm, 2000mm, 3000mm, 4000mm
WIDTH	1000mm
DEPTH	500mm, 1000mm
DIAPHRAGM SPACING	1000mm

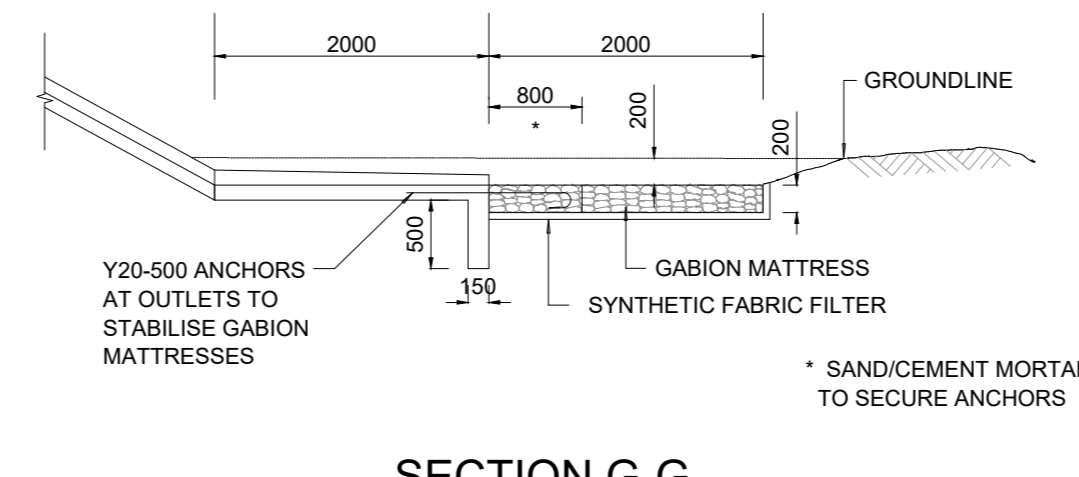
BOXES		
MESH SIZE AND WIRE DIAMETER FOR CAGES		
DEPTH OF GABION	MESH SIZE (mm)	WIRE DIA (mm)
500mm AND OVER	80 x 100	2.7
200mm TO 300mm	80 x 100	2.5

STANDARD SIZES	
LENGTH	6000mm
WIDTH	2000mm
DEPTH	170mm, 230mm, 300mm

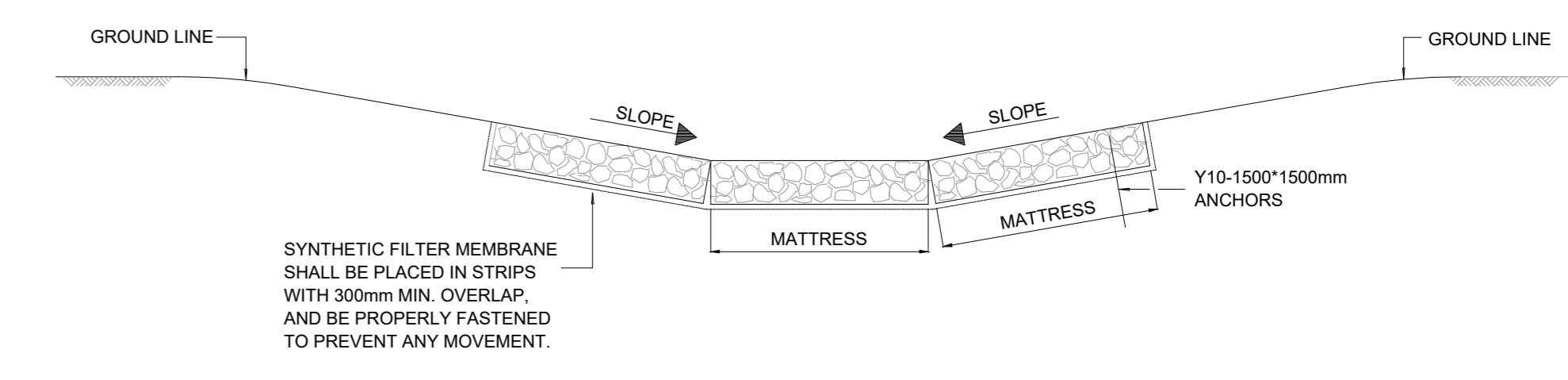
ROCK USED FOR THE FILLING OF CAGES		
DEPTH OF CAGES	ROCK SIZE (DIMENSIONS) MIN (mm)	MARKS (mm)
230	100	125
300	100	200
500	100	250
1000	100	300



**TYPICAL DETAIL OF GROUTED STONE PITCHING ADJACENT TO WINGWALLS**



**SECTION G-G**



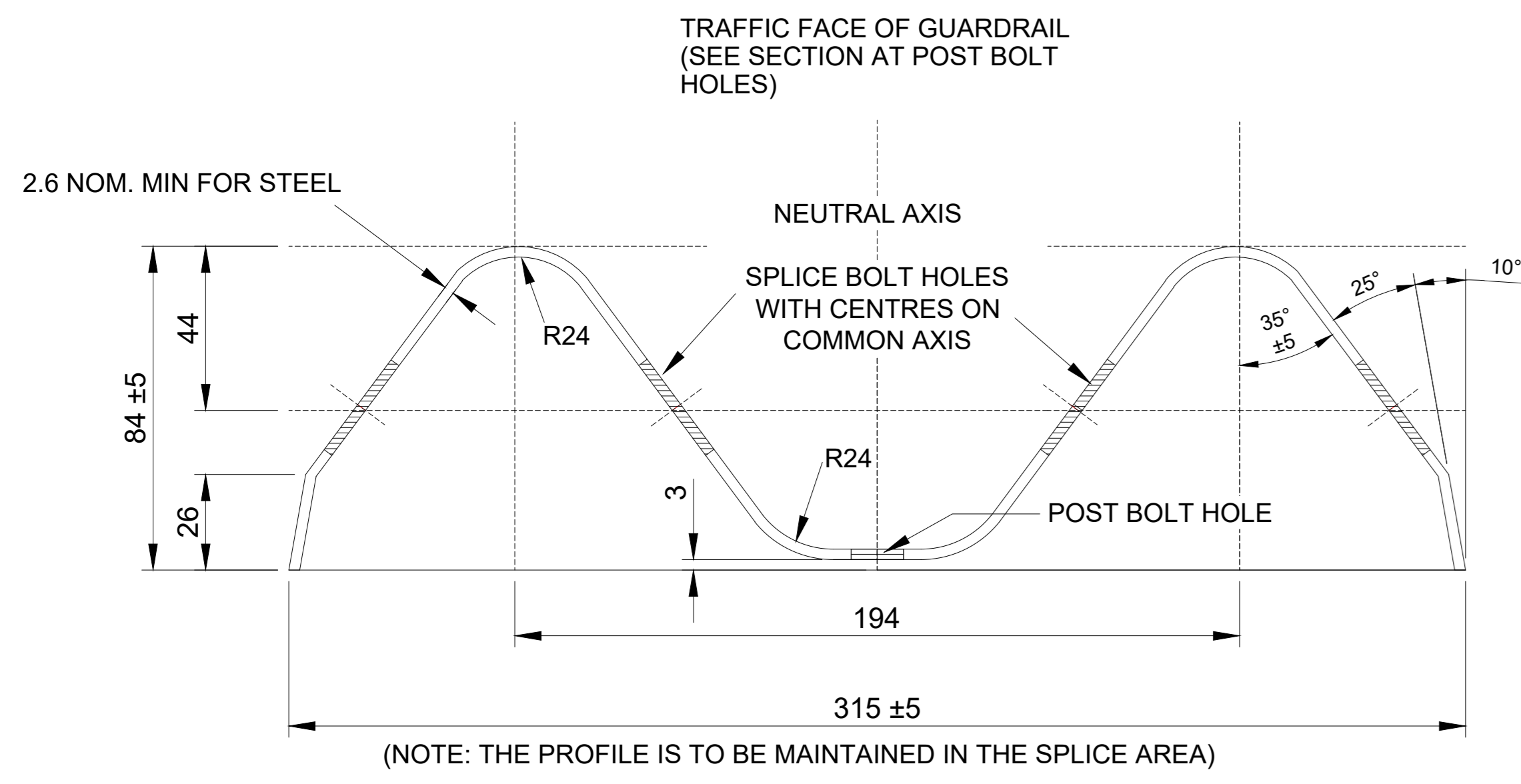
**SECTION OF MATTRESS IN CANAL**

**TENDER**

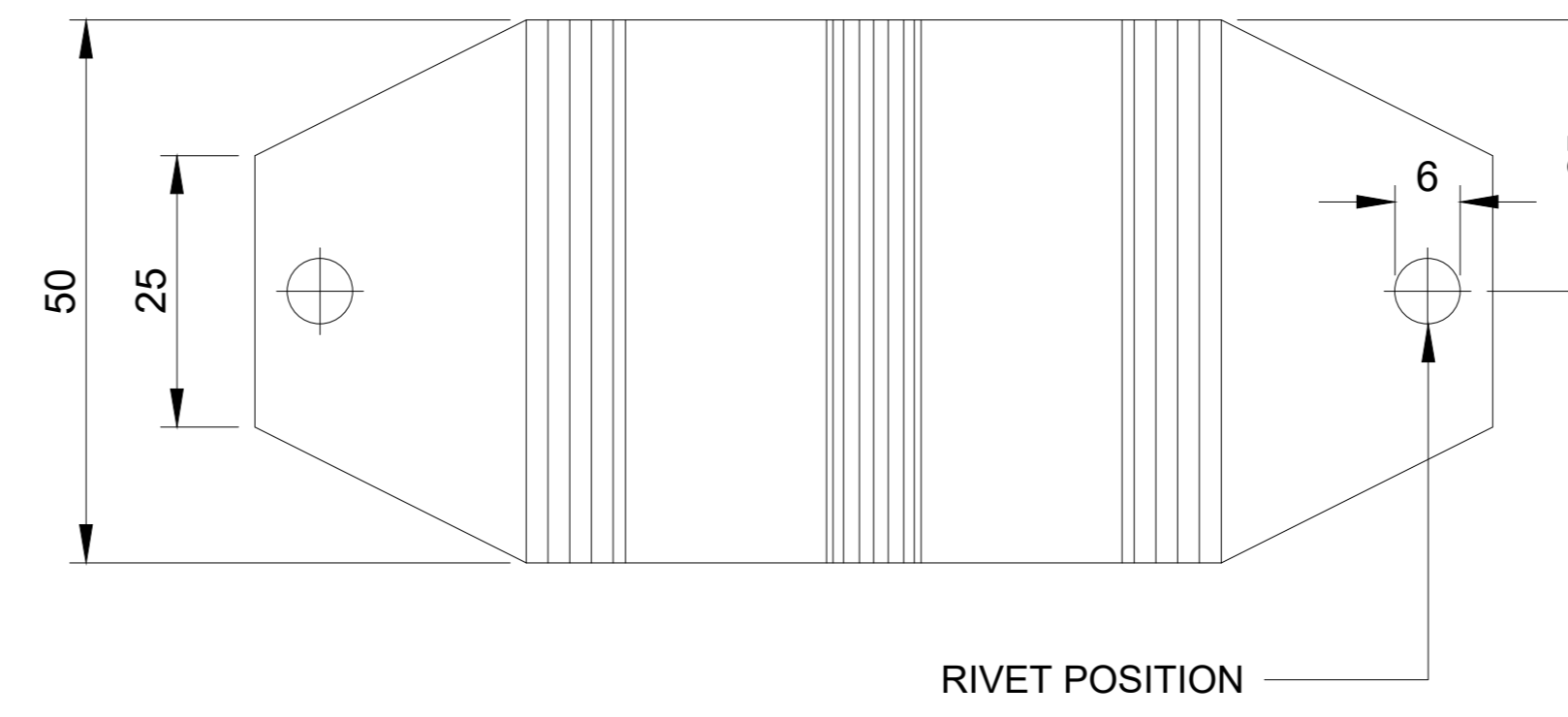
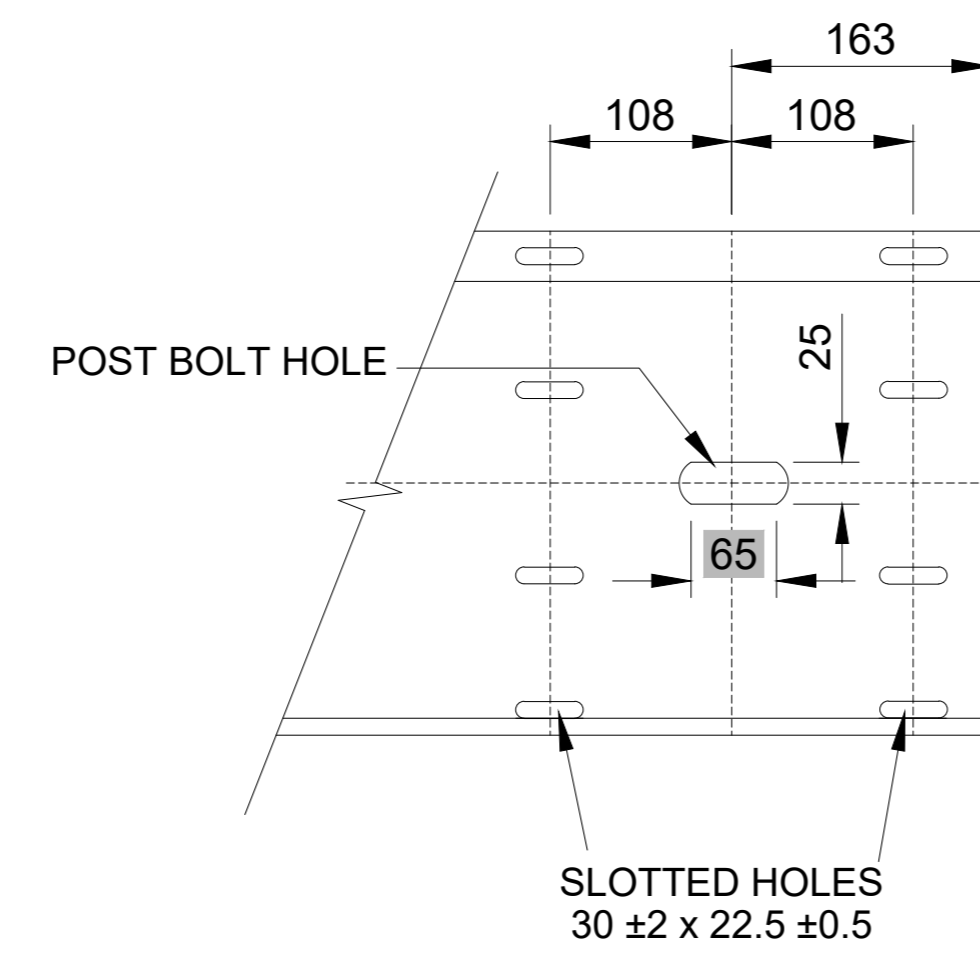
DRAWING CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD 24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za	CLIENT <b>CITY OF MBOMBELA</b>	CONTRACT NUMBER: PROJECT EMLOTSHWENI ROAD	SCALE: AS SHOWN
DRAWN BY: N. JIYANE		1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	DESCRIPTION GABIONS AND STONE PITCHING DETAILS	DATE: JULY 2026
DESIGN CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	 EXCELLENCE OVER MEASUREMENT	 THE ULTIMATE GENERATION	 P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111	REVISION <b>B</b>
DESIGNED BY:				DRAWING NO: GG-2023-RD-06

**NOTES**

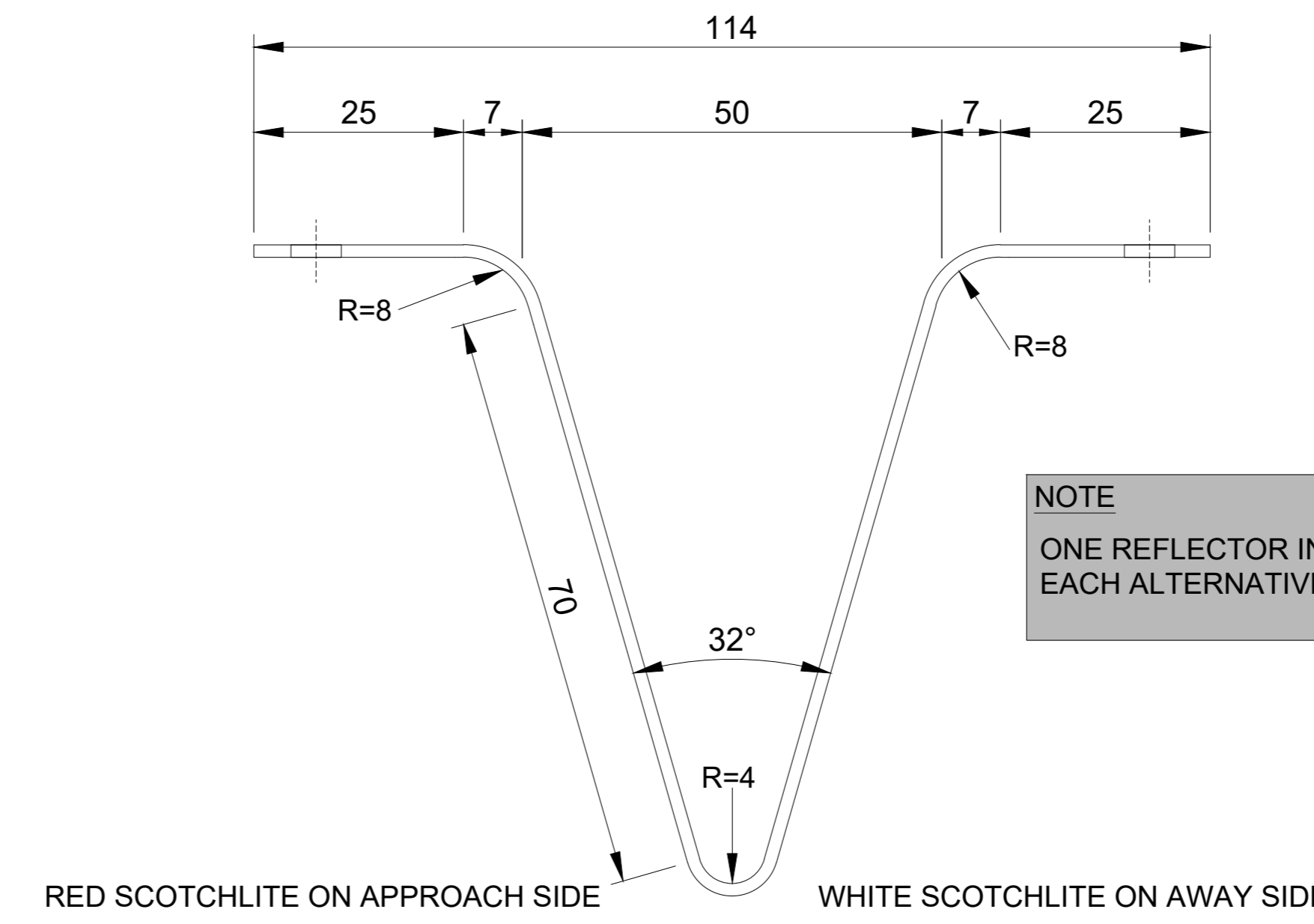
1. GUARDRAILS ARE REQUIRED IN THE FOLLOWING CASES:
  - 1.1 WHERE THE FILL IS MORE THAN 4m WITH NO RECOVERY AREA.
  - 1.2 WHERE WATER NEXT TO THE ROAD FORMATION IS DEEPER THAN 1.5m.
  - 1.3 AT ALL BRIDGES.
  - 1.4 ON THE OUTSIDE OF CURVES WITH RADII LESS THAN 300m WITHOUT RECOVERY AREAS.
  - 1.5 WHERE OBSTRUCTIONS ARE LESS THAN 1m FROM THE SHOULDER BREAKPOINT.
  - 1.6 WHERE AN OBSTRUCTIONS APPEARS TO BE MORE DANGEROUS THAN WHAT A GUARDRAIL WOULD BE.
2. BEFORE GUARDRAILS ARE ERECTED APPROVAL MUST BE OBTAINED FROM THE GENERAL MANAGER: ROADS AND STORMWATER.
3. SPECIFICATIONS:
  - 3.1 BOLT : HIGH TENSILE STEEL 16mm
  - 3.2 WASHER : STEEL SPRING 10mm THICK.
  - 3.3 SPACERBLOCK : GUM OR PINE. TREATED WITH CREOSOTE ACCORDING TO ANY METHOD IN SANS 10005.
  - 3.4 POLE : 150mm TO 230mm GUM OR PINE TREATED WITH CREOSOTE ACCORDING TO ANY METHOD IN SANS 10005.
  - 3.5 ALL GUARDRAILS SHALL BE GALVANIZED AS SPECIFIED (NOT PAINTED).
4. ALSO REFER TO SECTION 611 OF THE STANDARD SPECIFICATION FOR MUNICIPAL CIVIL ENGINEERING WORKS, 3rd EDITION, 2005.



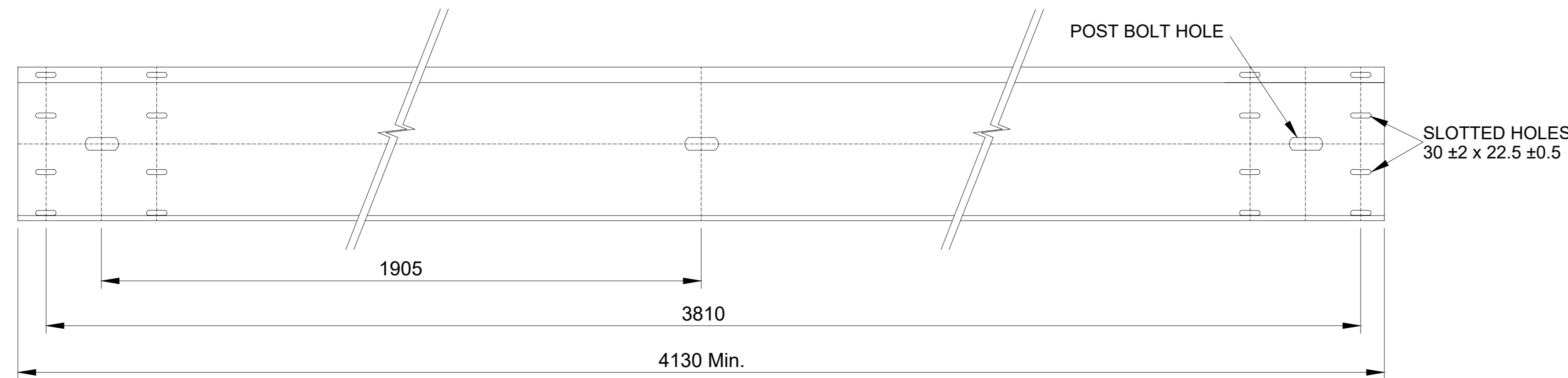
**CROSS-SECTION OF GUARDRAIL**  
SCALE 1:2



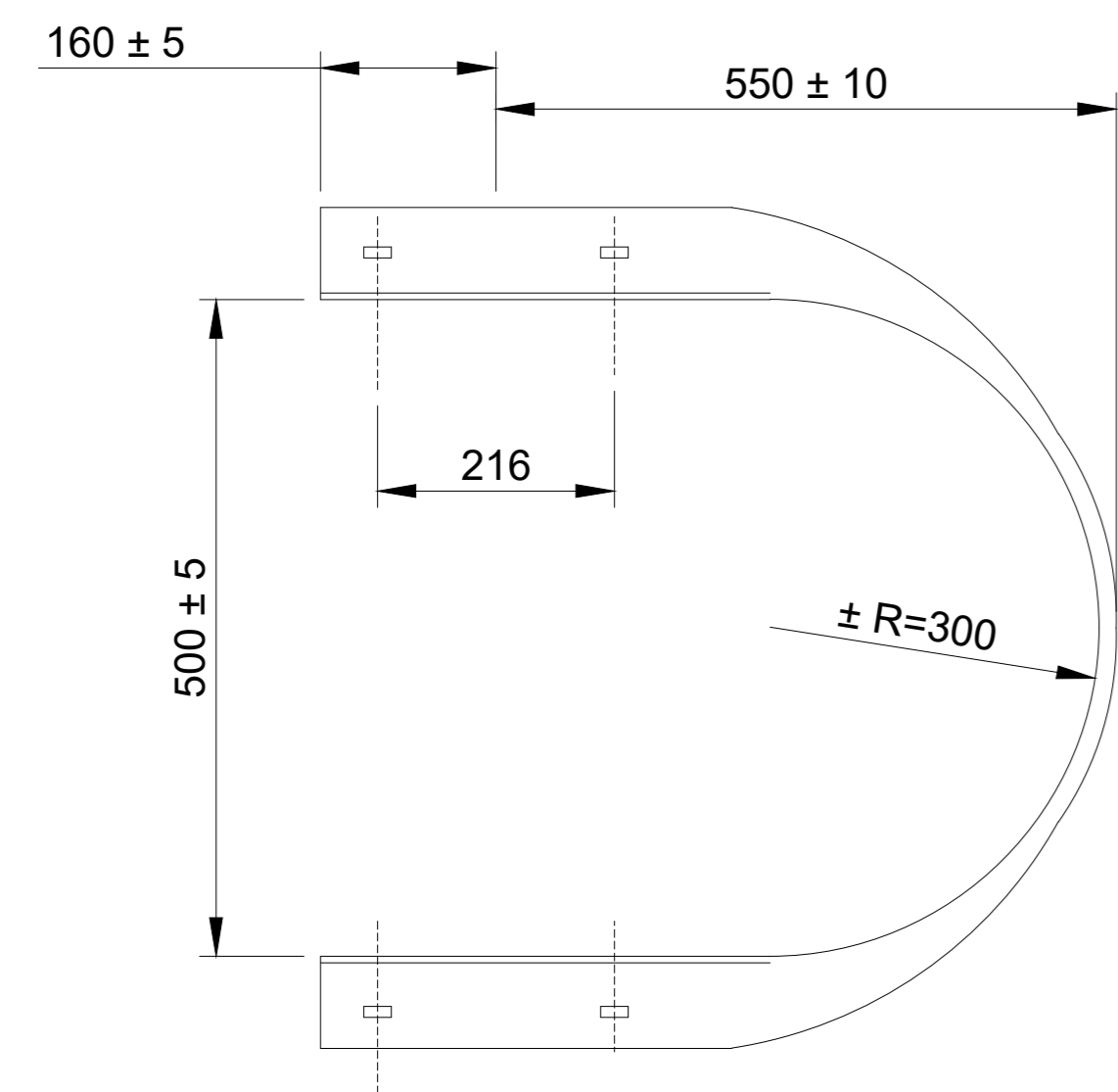
**FRONT ELEVATION**  
SCALE 1:25



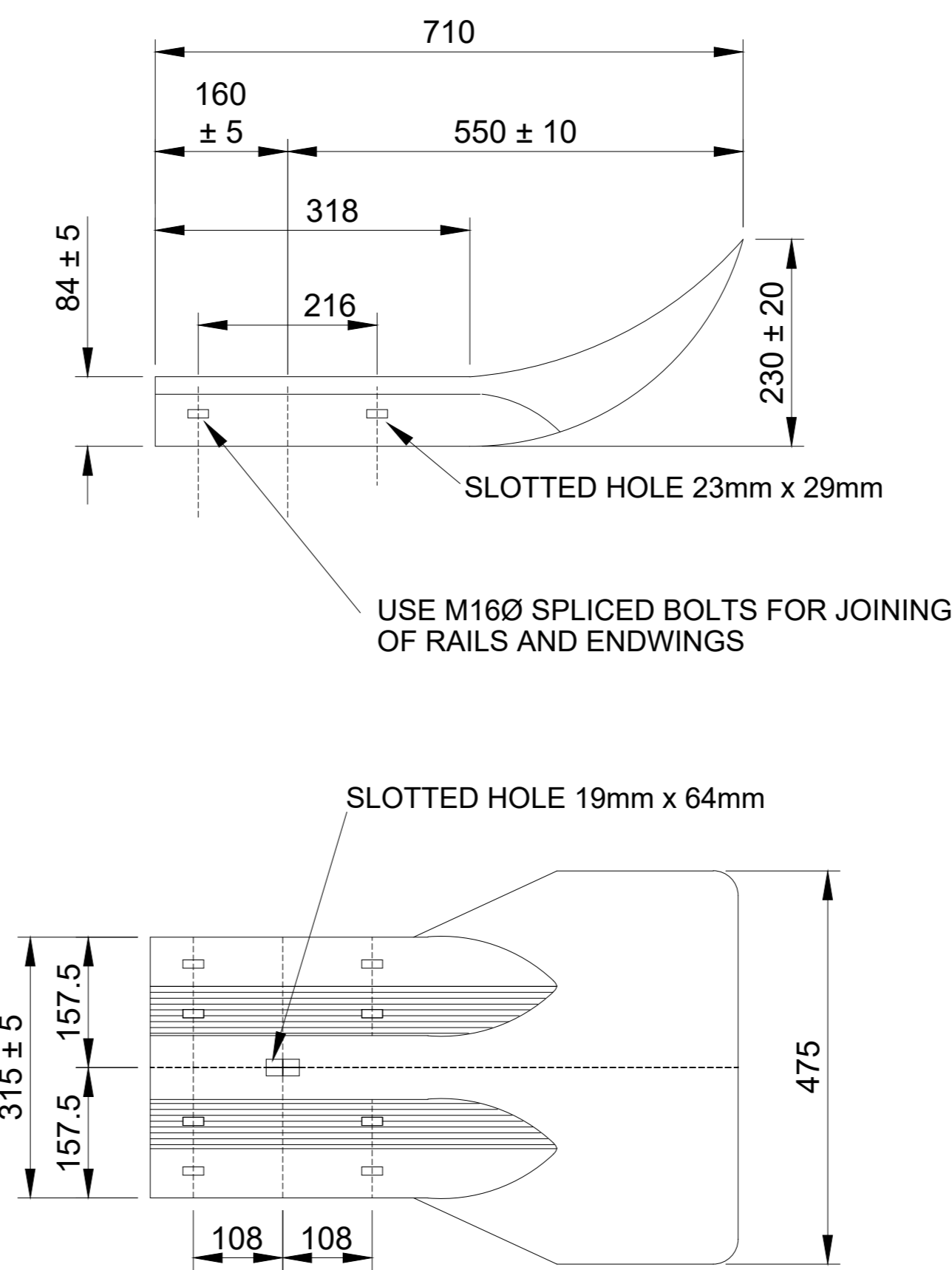
**SECTIONAL PLAN : DETAIL OF REFLECTOR PLATE**  
SCALE 1:1



**GUARDRAIL**  
SCALE 1:10



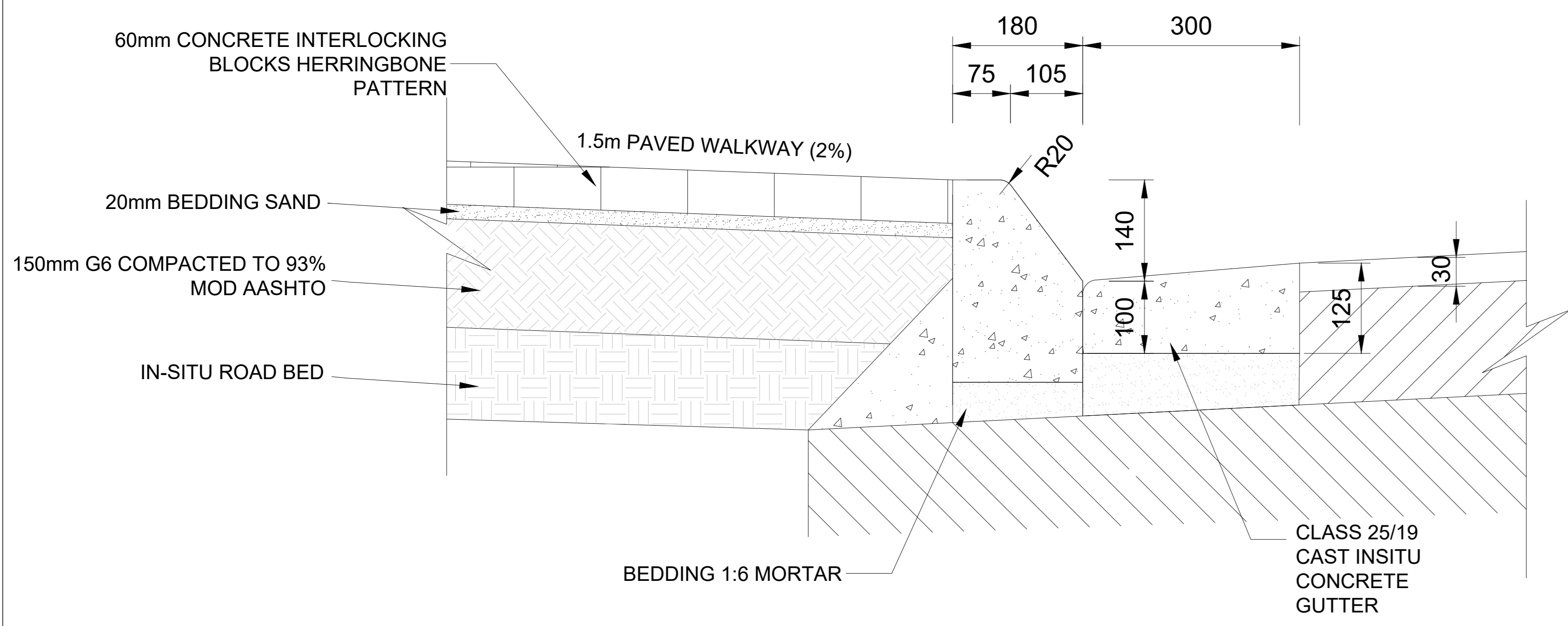
**BULLNOSE ENDWING - PLAN**  
SCALE 1:10



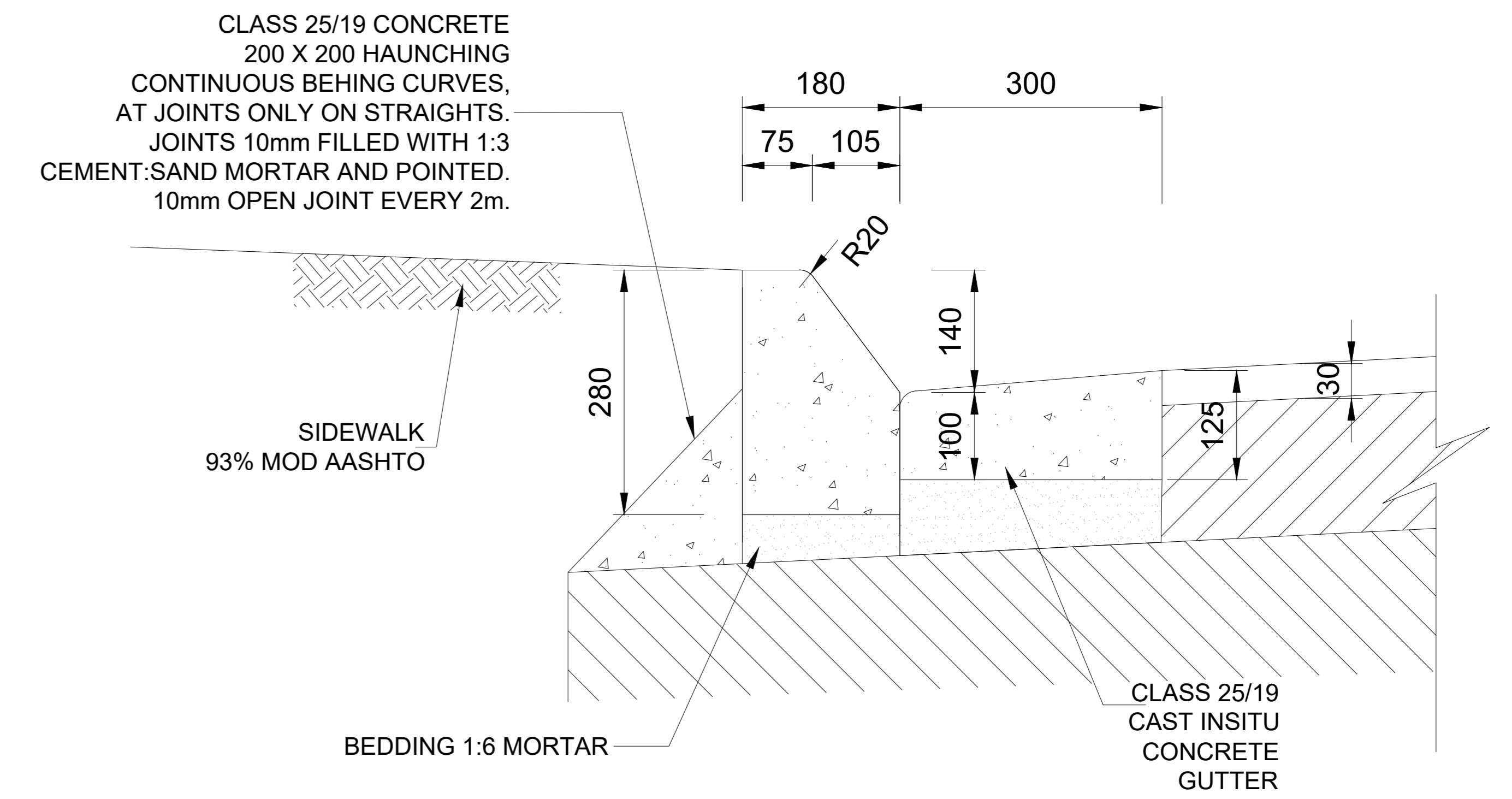
**STANDARD TYPICAL FLARED ENDWING**  
SCALE 1:10

**TENDER**

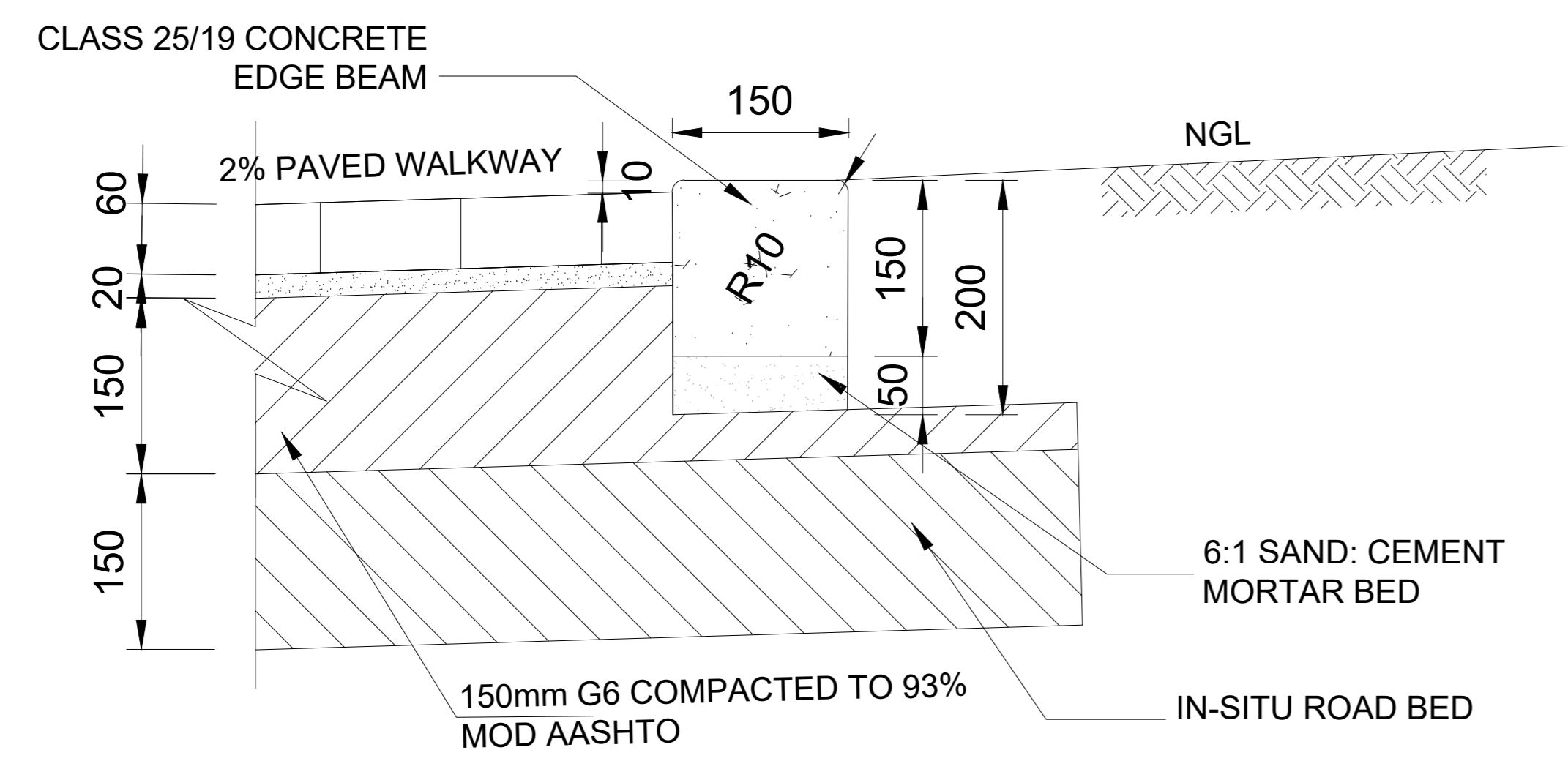
DRAWING CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD  24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za	<b>CLIENT</b> CITY OF MBOMBELA  1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111 	CONTRACT NUMBER:	SCALE: AS SHOWN
DRAWN BY: N. JIYANE				PROJECT EMLOTSHWENI ROAD	DATE: JULY 2026
DESIGN CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647				DESCRIPTION GUARDRAILS : CROSS SECTION, REFLECTOR PLATES AND ENDWINGS	REVISION B
DESIGNED BY:					DRAWING NO: GG-2023-R-SD-10



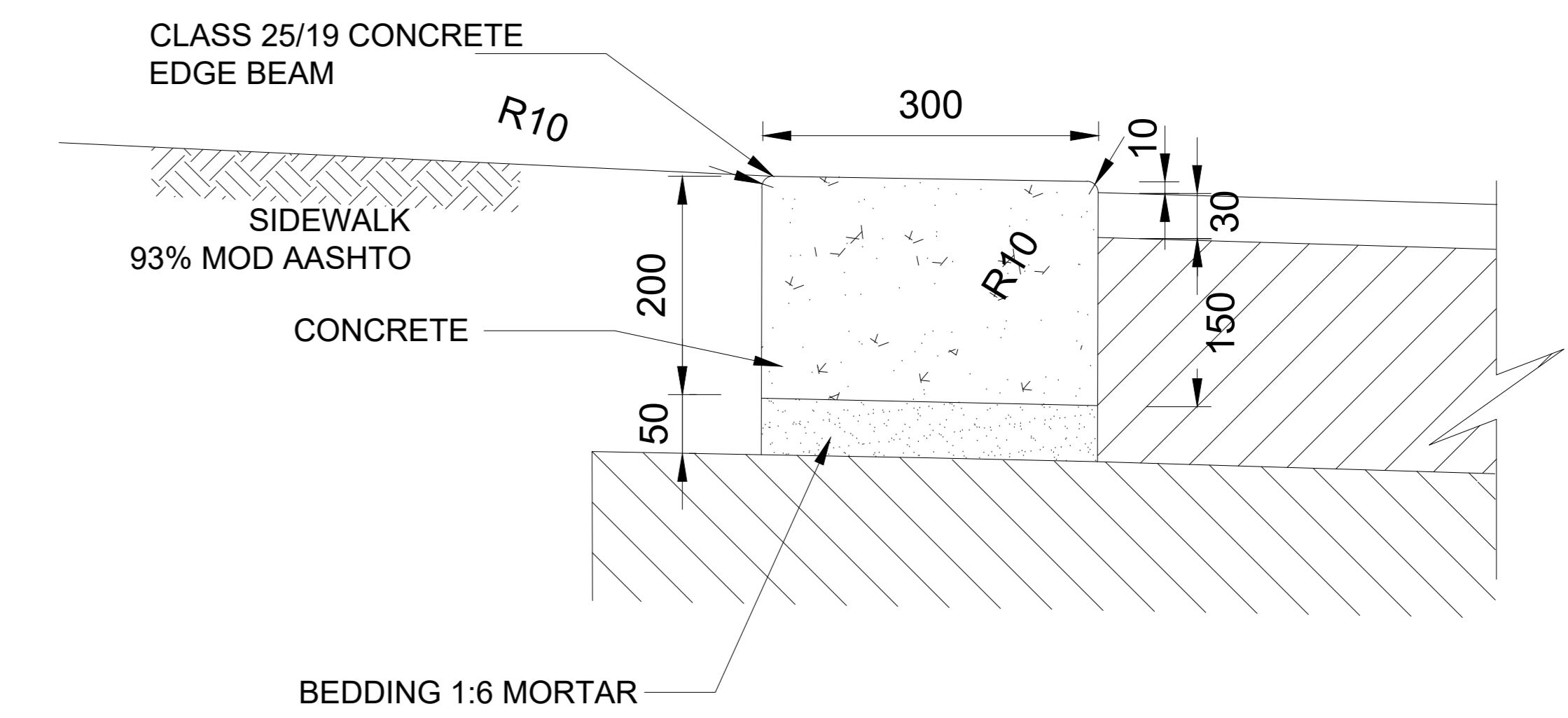
**SEMI MOUNTABLE KERB DETAIL**  
SCALE 1:10



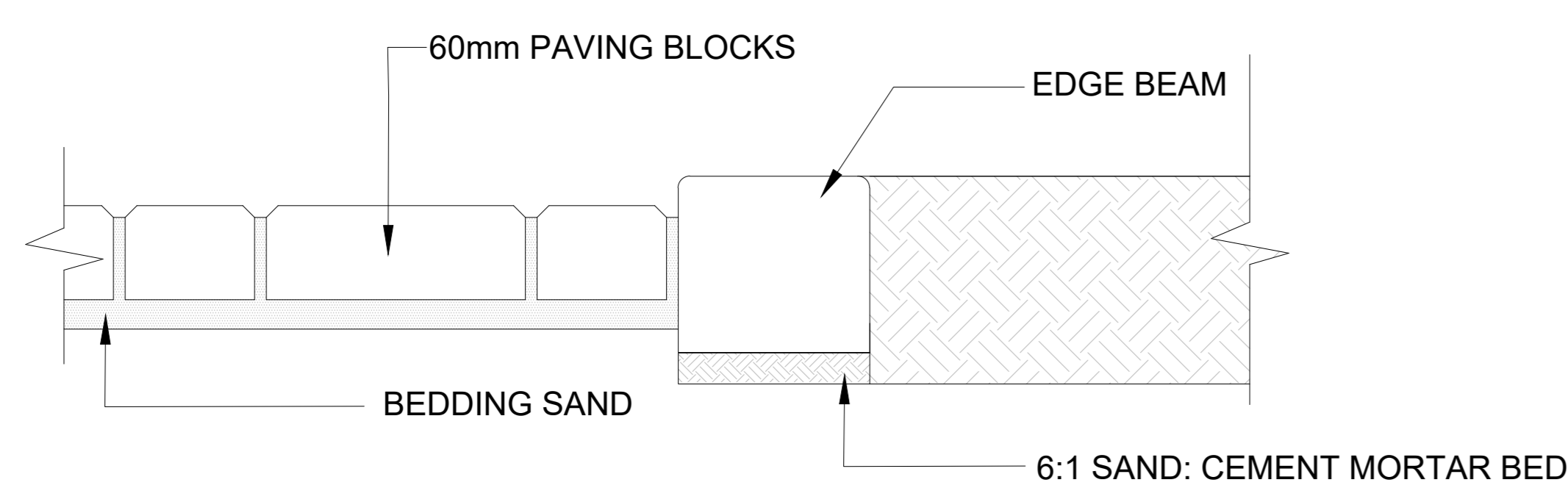
**SEMI MOUNTABLE KERB (FIG 7) DETAIL**  
SCALE 1:10



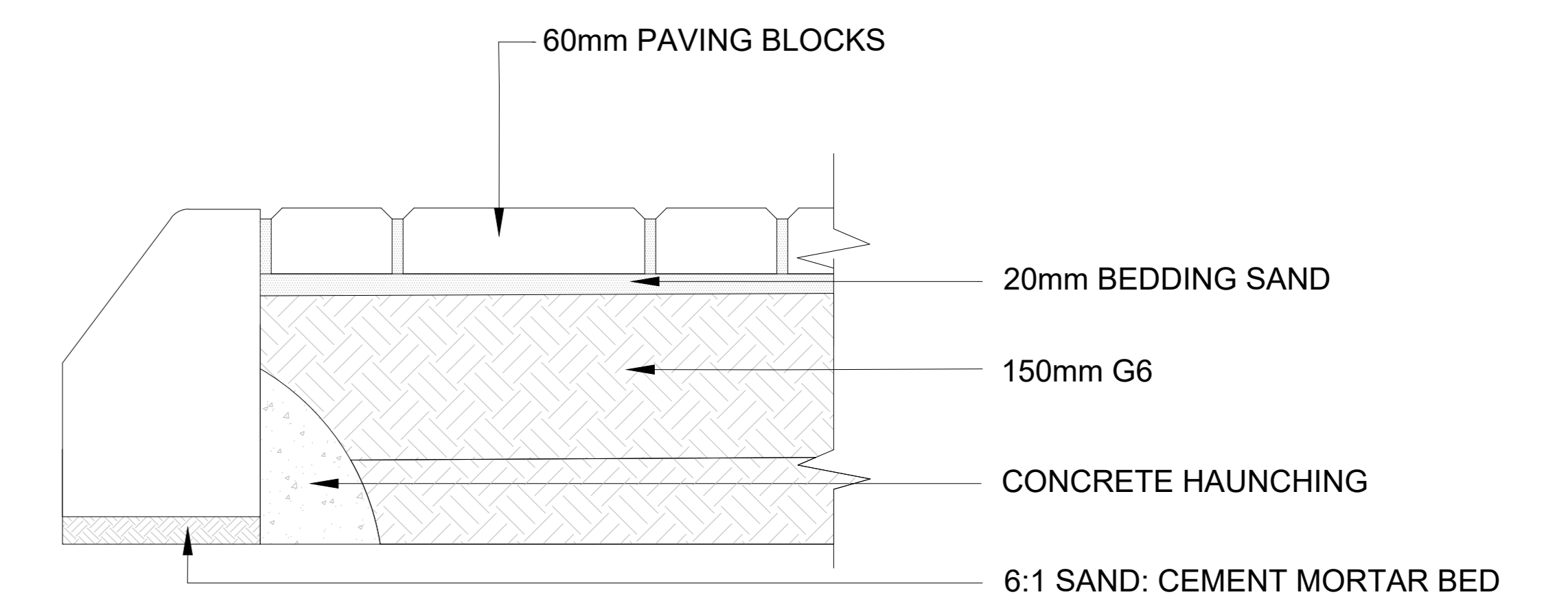
**EDGE BEAM DETAIL**  
SCALE 1:10



**EDGE BEAM DETAIL**  
SCALE 1:10




**EDGE BEAM DETAIL**  
SCALE 1:10



**SEMI MOUNTABLE KERB (FIG 7) DETAIL**  
SCALE 1:10

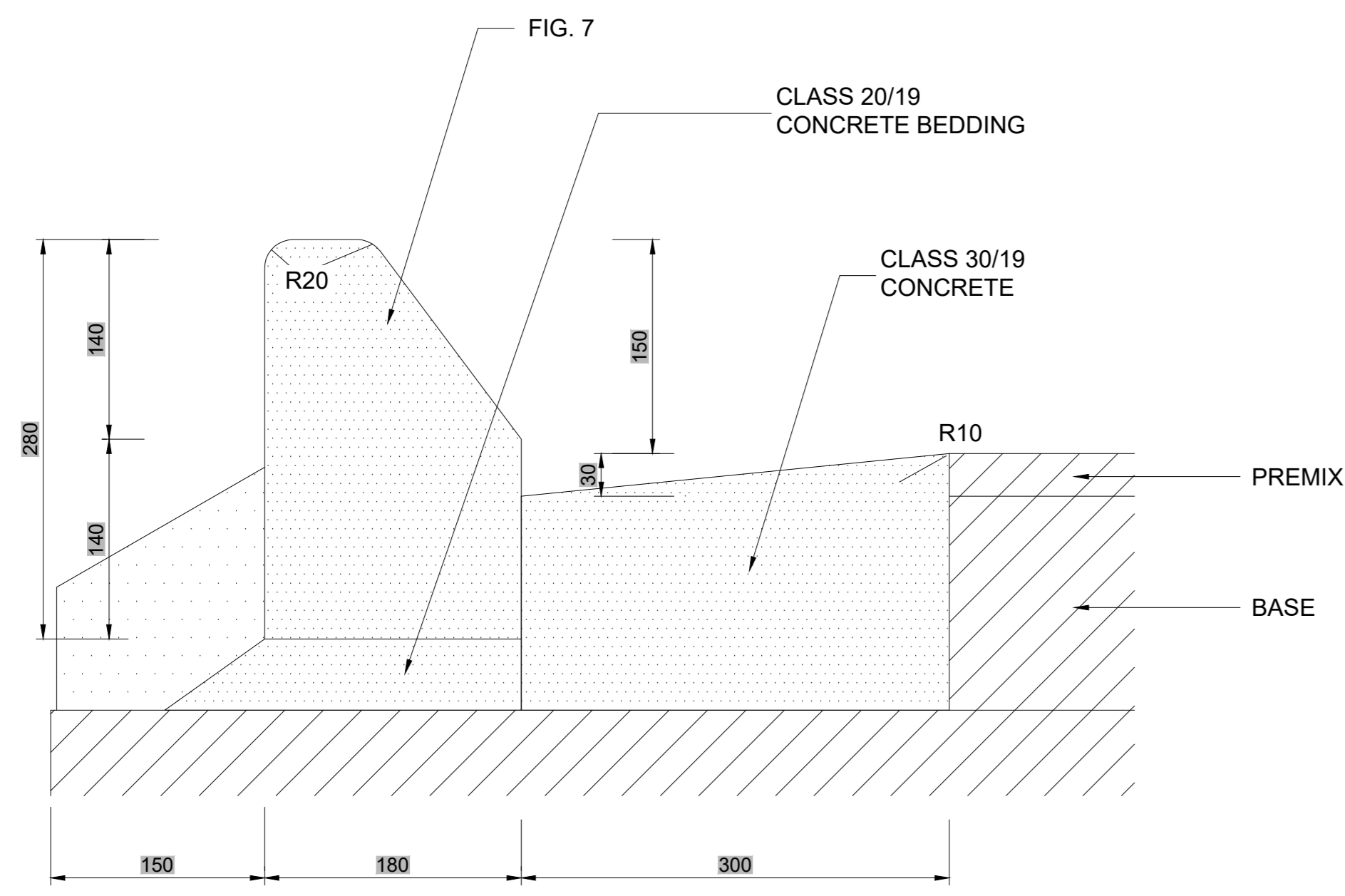
TENDER

DRAWING CHECKED:	T. MAGAGULA Pr. Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD  24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za
DRAWN BY:	N. JIYANE	
DESIGN CHECKED:	T. MAGAGULA Pr. Tech Eng : 2019300647	
DESIGNED BY:		

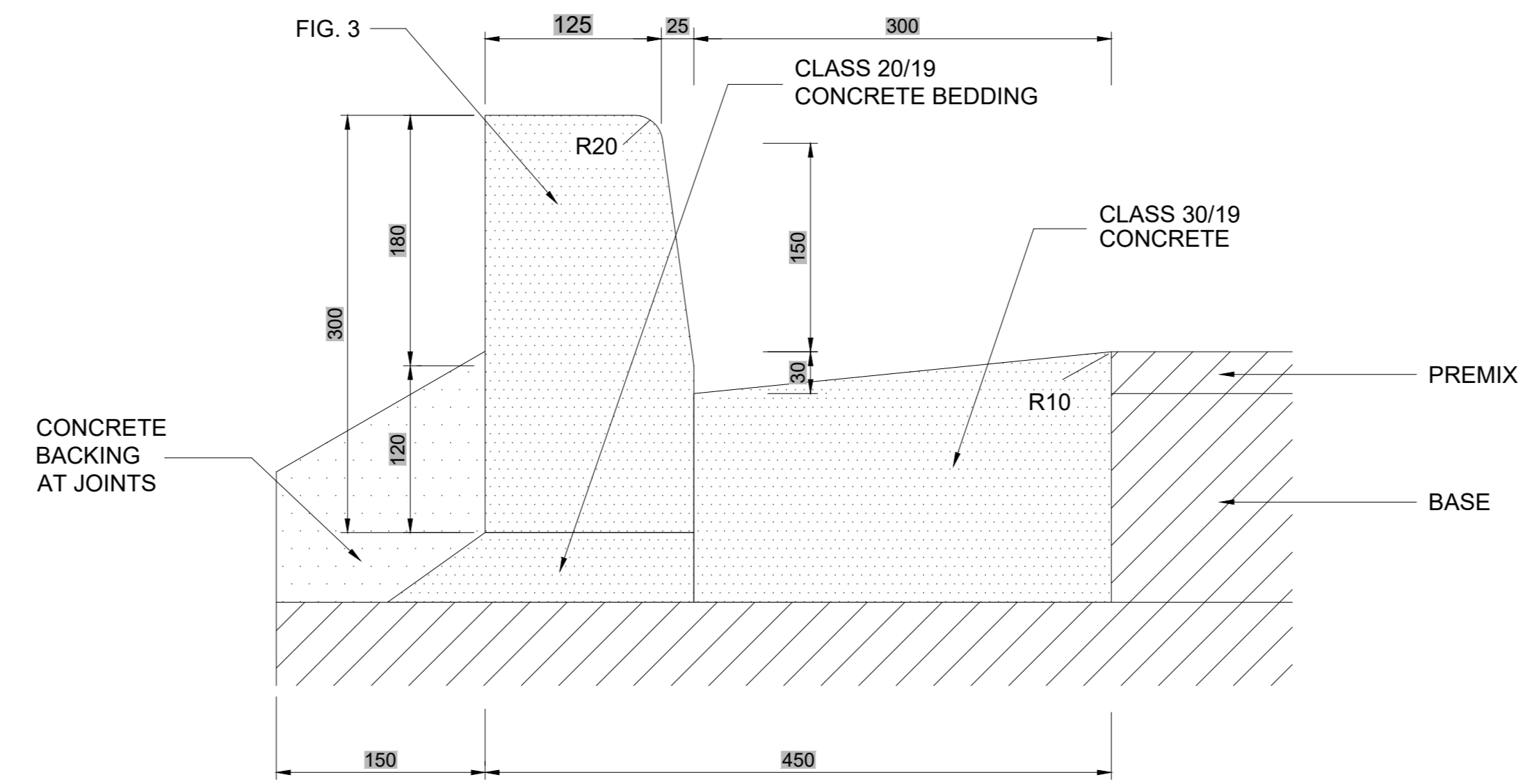
<b>CLIENT</b>		
<b>CITY OF MBOMBELA</b>		
1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111	

<b>CONTRACT NUMBER:</b>	SCALE: AS SHOWN
<b>PROJECT</b>	DATE: JULY 2026
<b>SAWOTINI ROAD AND SAWOTINI ADD-ON</b>	REVISION <b>B</b>
<b>DESCRIPTION</b>	DRAWING NO: GG-2026-R-SD-02
<b>KERBS AND EDGE BEAM DETAILS</b>	

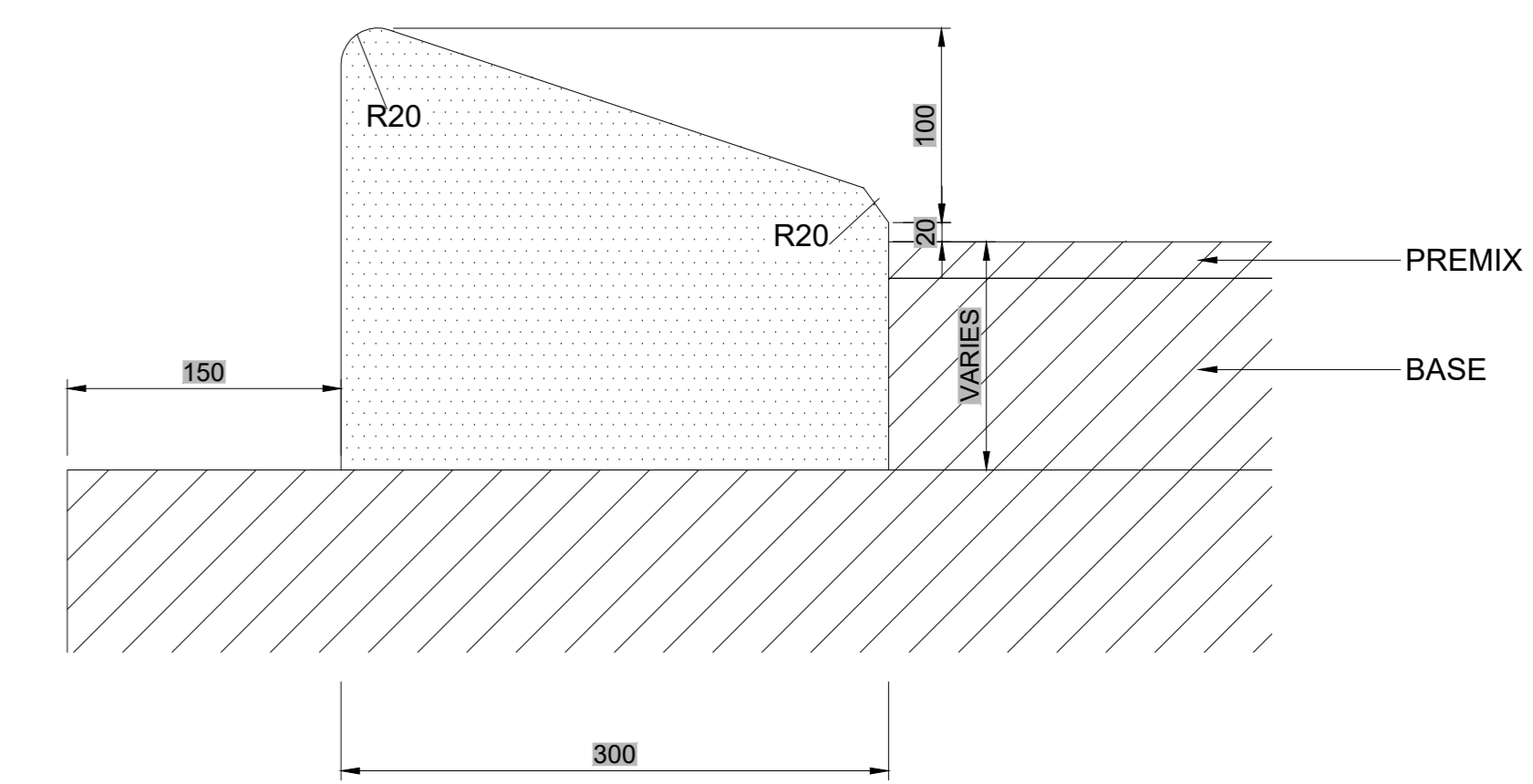
**NOTE**  
 EXPANSION JOINTS OF 12mm WIDTH AT 20m  
 INTERVALS AS PER CLAUSE 5.7 OF SANS 1200 M.C.  
 MASS CONCRETE BACKING AT ALL JOINTS.



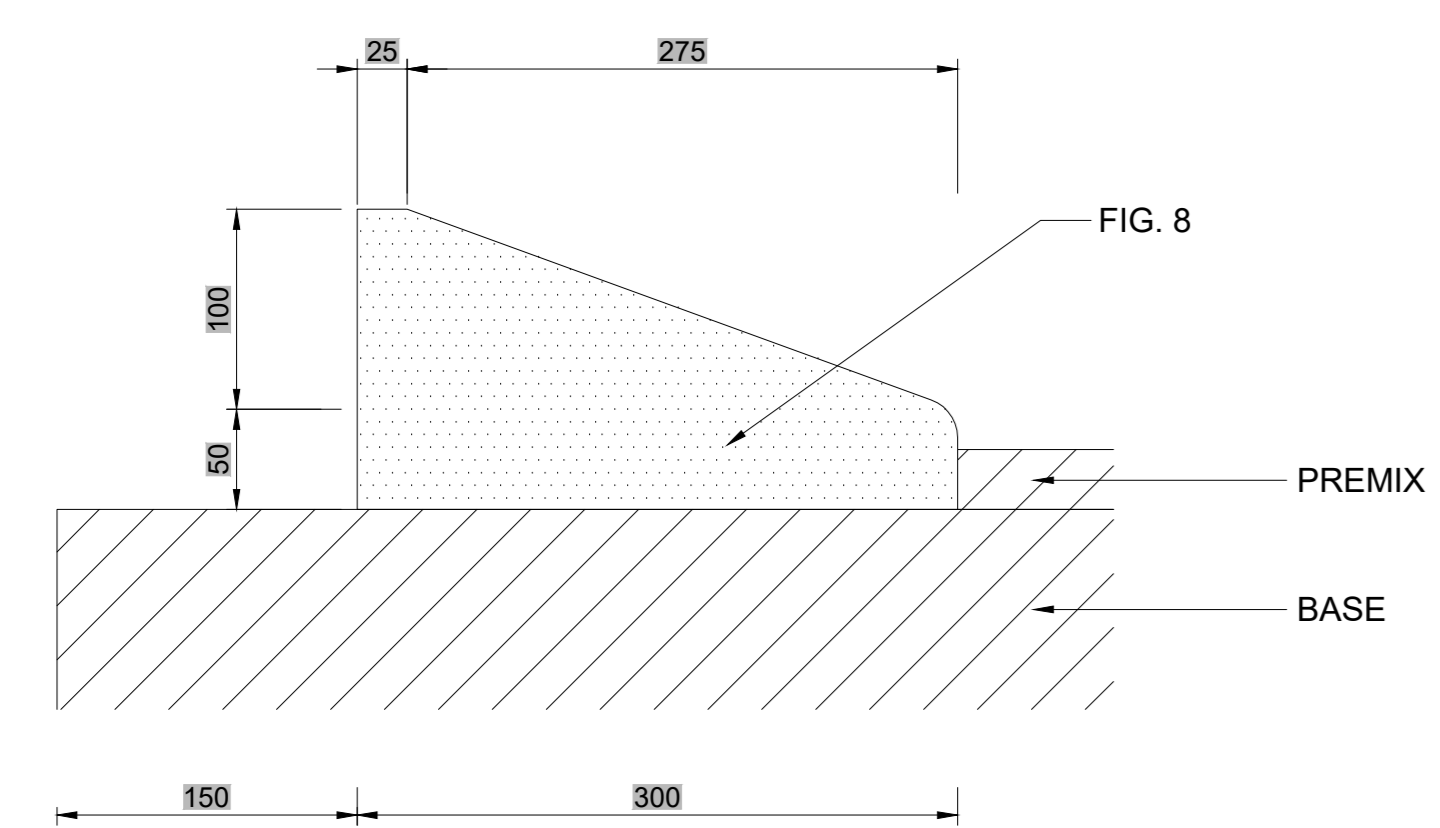
**280mm HIGH SEMI-BARRIER KERB**



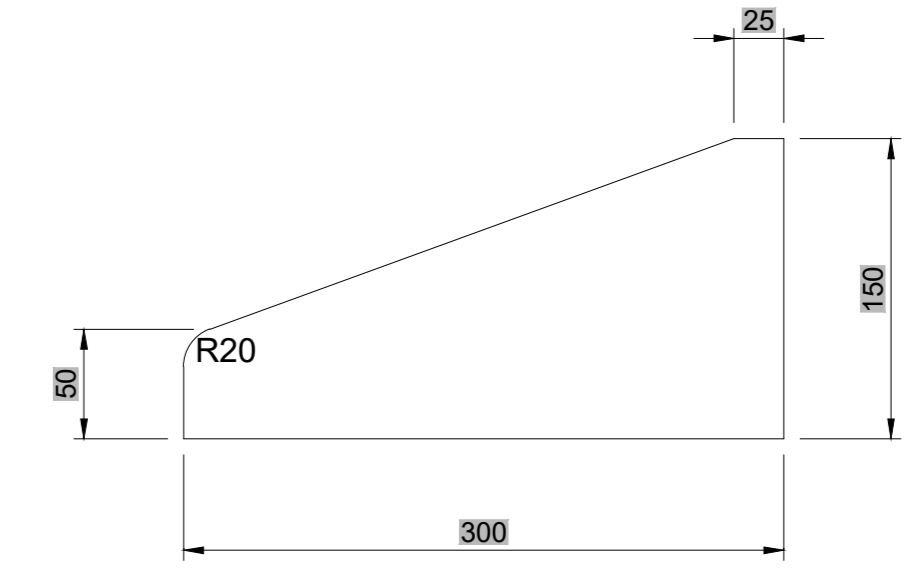
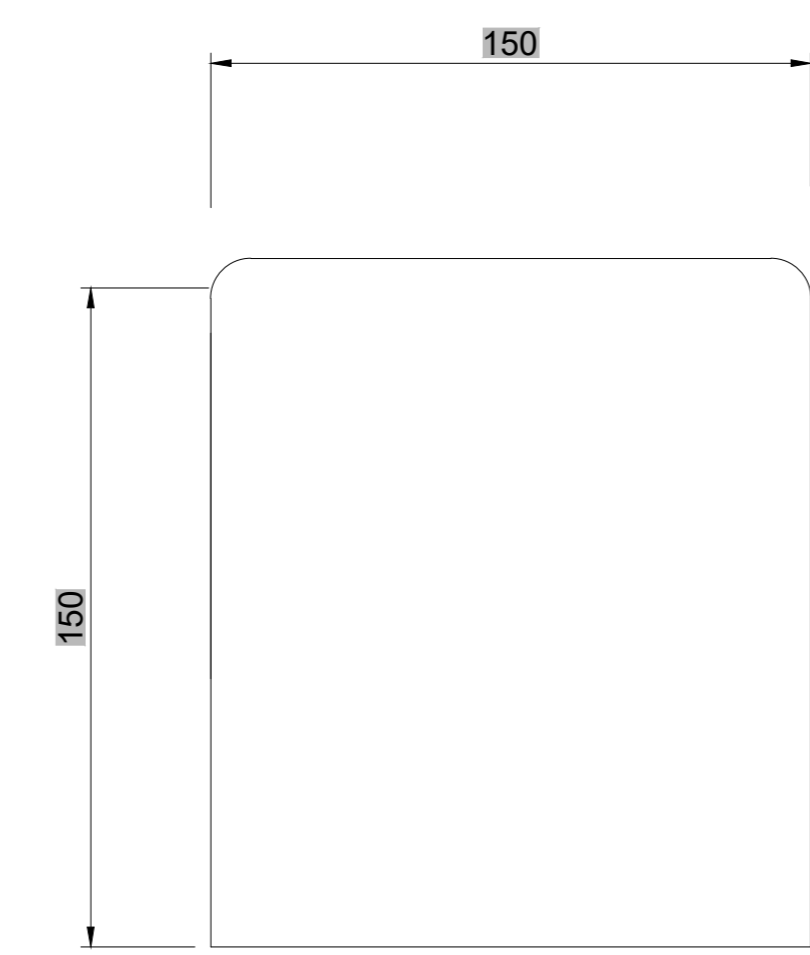
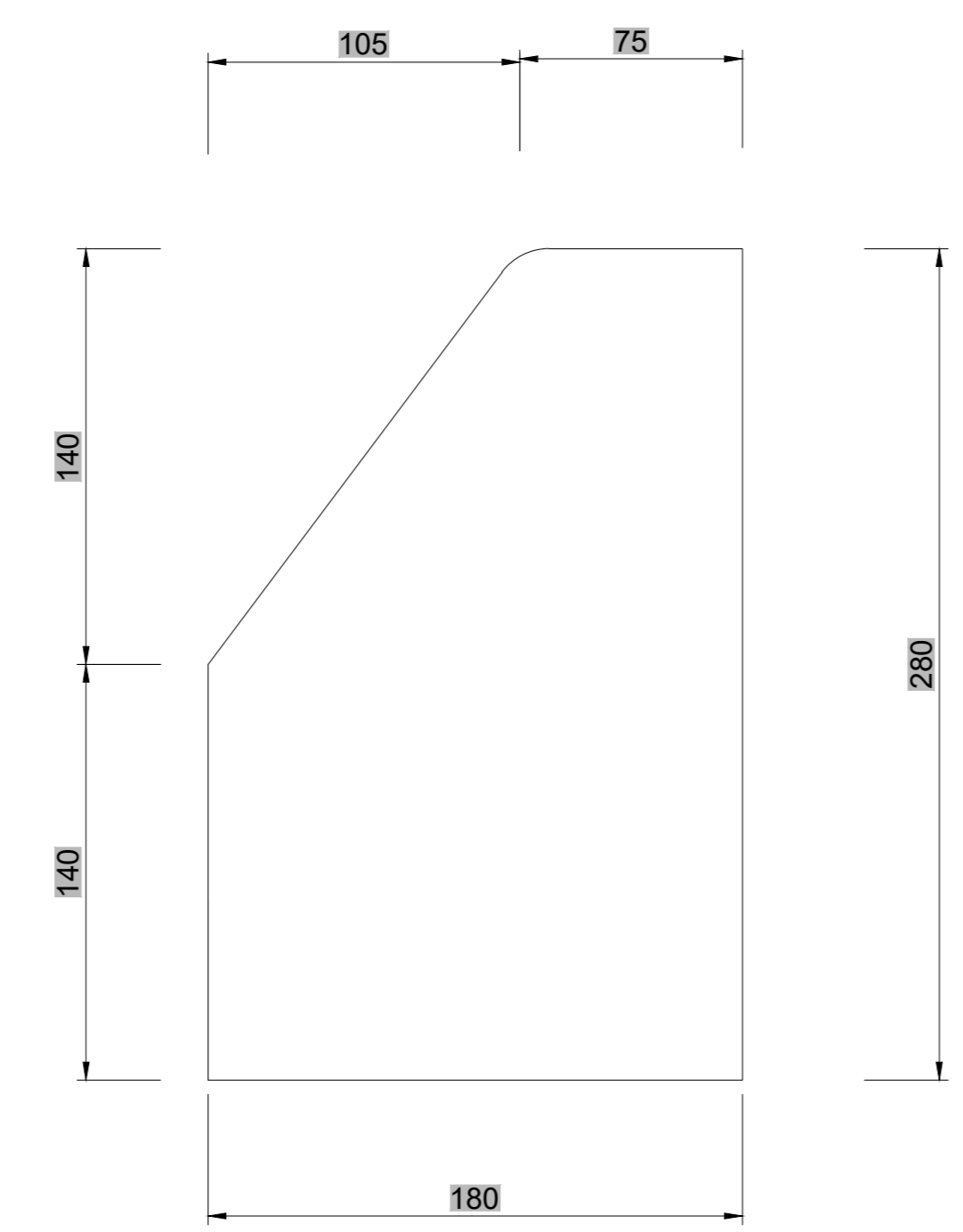
**300mm HIGH BARRIER KERB**



**IN-SITU MOUNTABLE KERB**




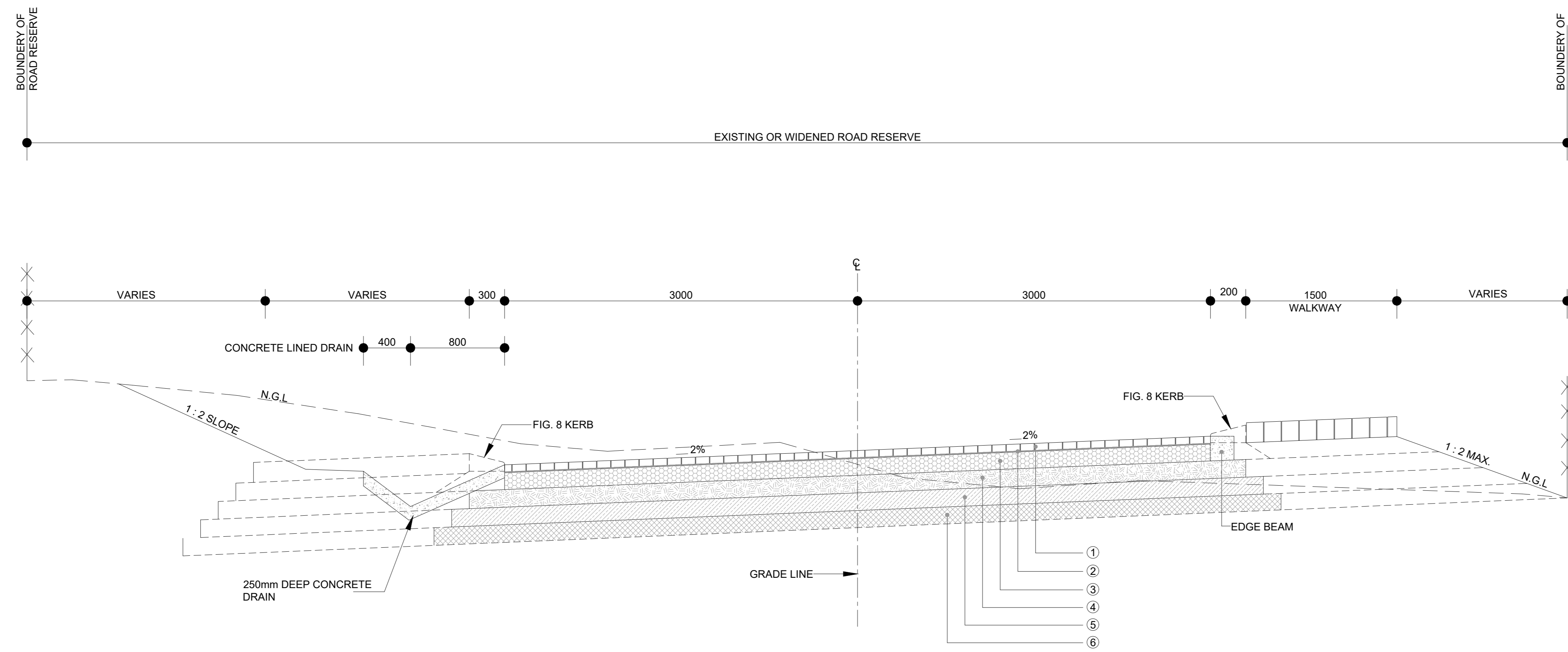
**PRECAST MOUNTABLE KERB**



**MOUNTABLE KERBS**

**TENDER**

DRAWING CHECKED:	T. MAGAGULA Pr. Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD  24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za	<b>CLIENT</b> CITY OF MBOMBELA 		CONTRACT NUMBER: PROJECT EMLOTSHWENI ROAD DESCRIPTION TYPICAL DETAILS : KERBS	SCALE: AS SHOWN DATE: JULY 2026 REVISION B DRAWING NO: GG-2026-R-SD-01
DRAWN BY:	N. JIYANE		1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111 		
DESIGN CHECKED:	T. MAGAGULA Pr. Tech Eng : 2019300647					
DESIGNED BY:						



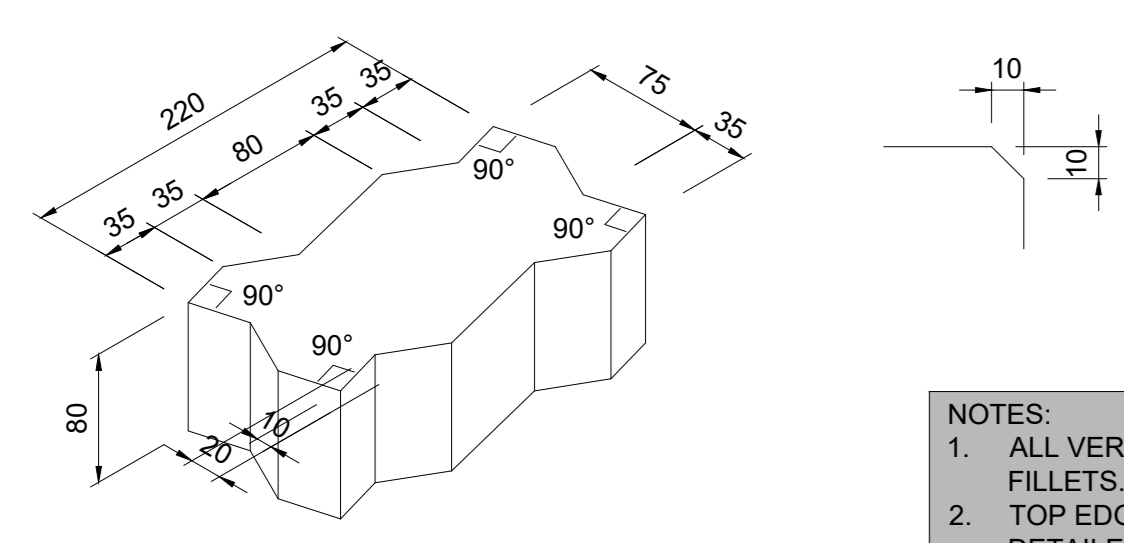
TYPICAL CROSS SECTION  
SCALE 1 : 20

MATERIAL STANDARDS									
No	DEPTH (mm)	DESCRIPTION	% COMP. AASHTO	MAX. PI	GM MIN.	MIN. CBR AT % MOD. AASHTO DENSITY	UCS kPa	TRH 4 CLASS	LEGEND
①	80	INTERLOCKING CONC. PAVING BLOCKS	-	-	-	-	-	S-A	
②	20	BEDDING SAND	-	-	-	-	-	-	
③	150	STABILISED SUBBASE	97%	6	1.2	-	1500	C3	
④	150	UPPER SELECTED LAYER	95%	12	0.75	15@93%	-	G7	
⑤	MIN 150	FILL	93%	12	0.75	10@90%	-	G8	
⑥	150	ROADBED (INSITU)	93%	12	0.75	7@93%	-	G9	

NOTE: LAYER 4, 5 AND 6 ARE NOT MANDATORY AND ARE CONSTRUCTED ONLY DEPENDING ON FINISHED ROAD LEVELS

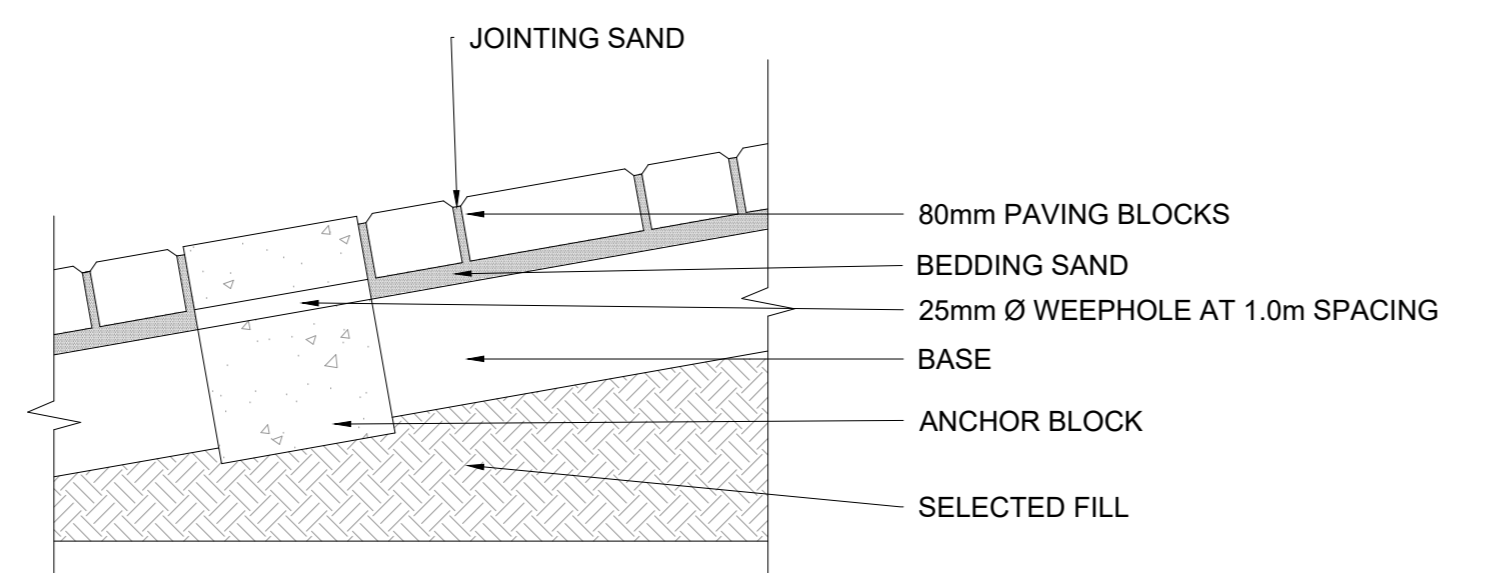
NOTES:

1. THE TYPICAL CROSS SECTION DOES NOT INDICATE THE WIDENING AT INTERSECTIONS.
2. SHOULDERS SHOULD HAVE A MIN. 1.0m WIDTH SLOPING AWAY FROM ROAD SURFACE AT 3.0% GRADIENT.
3. ALL SIDEWALK FILL AND SIDE FILL TO BE COMPACTED TO MINIMUM OF 93% MOD. AASHTO DENSITY.
4. ALL MATERIAL AND CONSTRUCTION TO CONFORM TO THE REQUIREMENTS OF COLTO AND SABS 1200.
5. ALL SERVICES TO BE INSTALLED AT 1000mm BACK OF KERBING OR EDGE OF PAVING.
6. COLOUR CODED KERBS FOR POSITIONING OF CABLE DUCTS.
7. ALL SERVICES SHOULD HAVE A MINIMUM COVER OF 600mm.
8. SUB-SOIL DRAINS MUST BE PLACED WHERE NECESSARY TO CONTROL HIGH WATERTABLES.



- NOTES:
1. ALL VERTICAL EDGES TO HAVE 10mm FILLETS.
  2. TOP EDGE TO BE BEVELLED AS DETAILED ABOVE.
  3. 25 MPa INSITU CAST CONCRETE BLOCKS AS PER PROJECT SPECS.

INTERLOCKING PAVING BLOCK  
SCALE 1:5



DETAIL OF ANCHOR BLOCK ON STEEP SLOPES  
SCALE 1:5

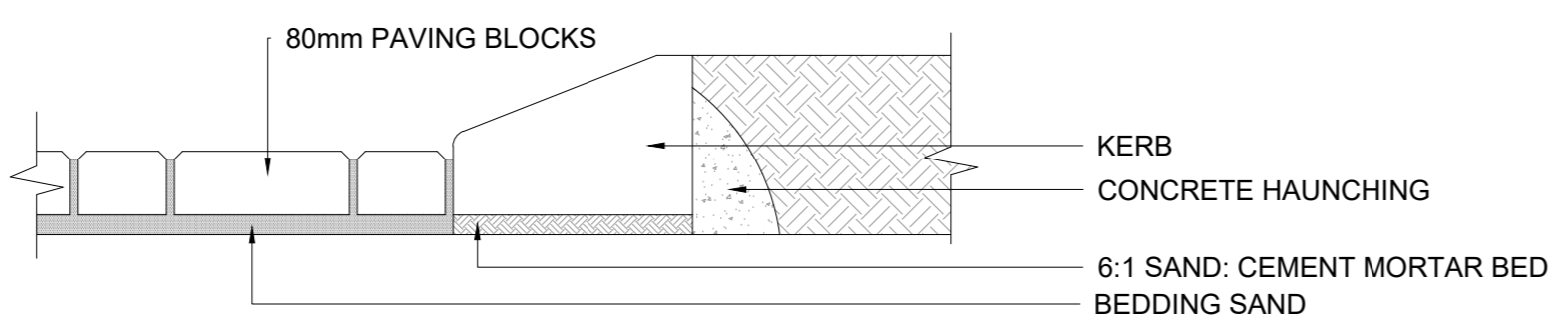


FIG 8(c) DETAIL  
SCALE 1:5

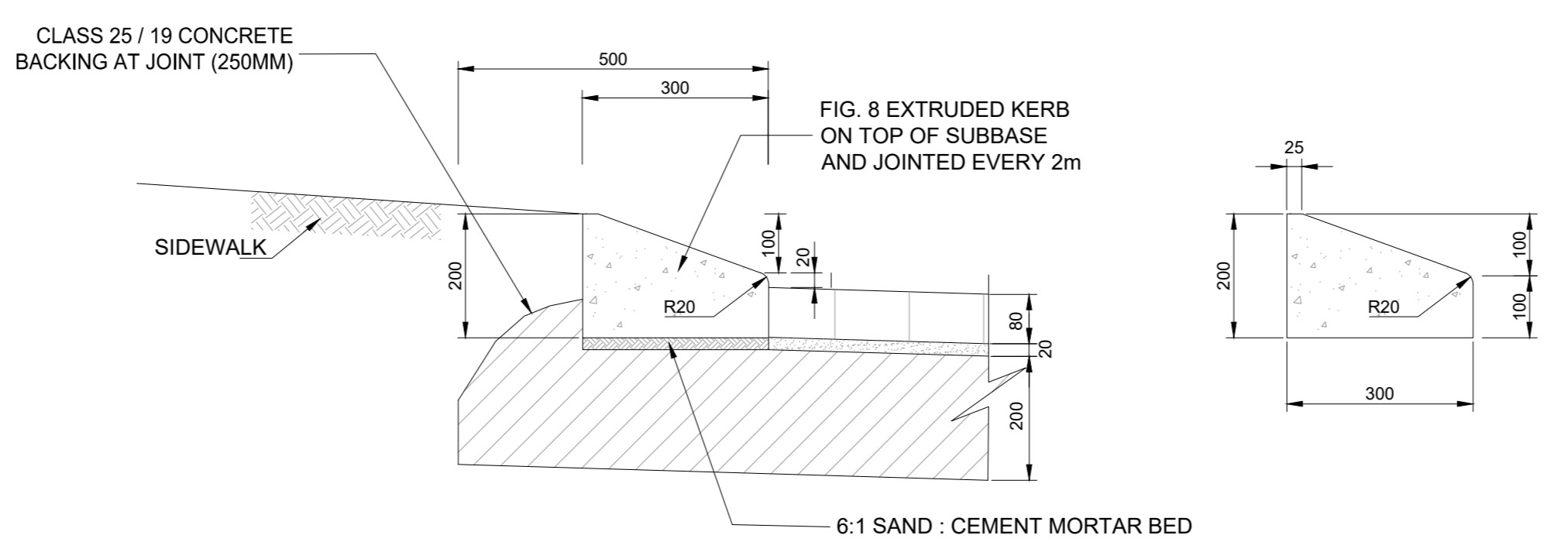


FIGURE 8C MOUNTABLE KERB DETAIL  
SCALE 1:10

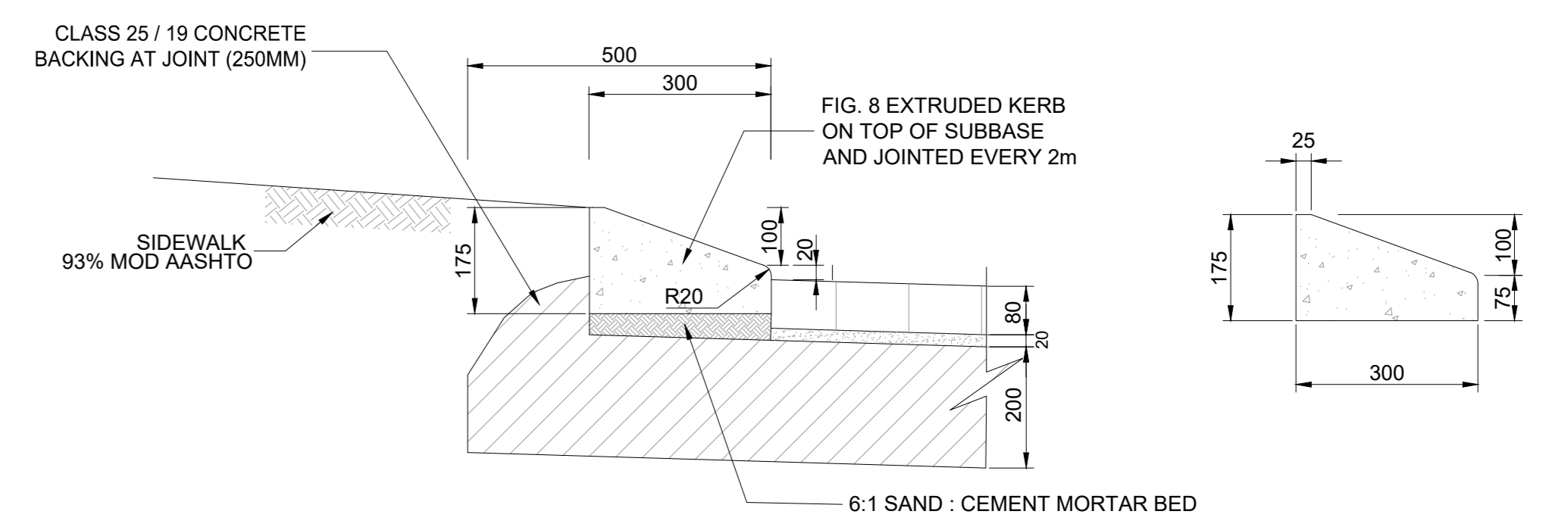


FIGURE 8B MOUNTABLE KERB DETAIL  
SCALE 1:10

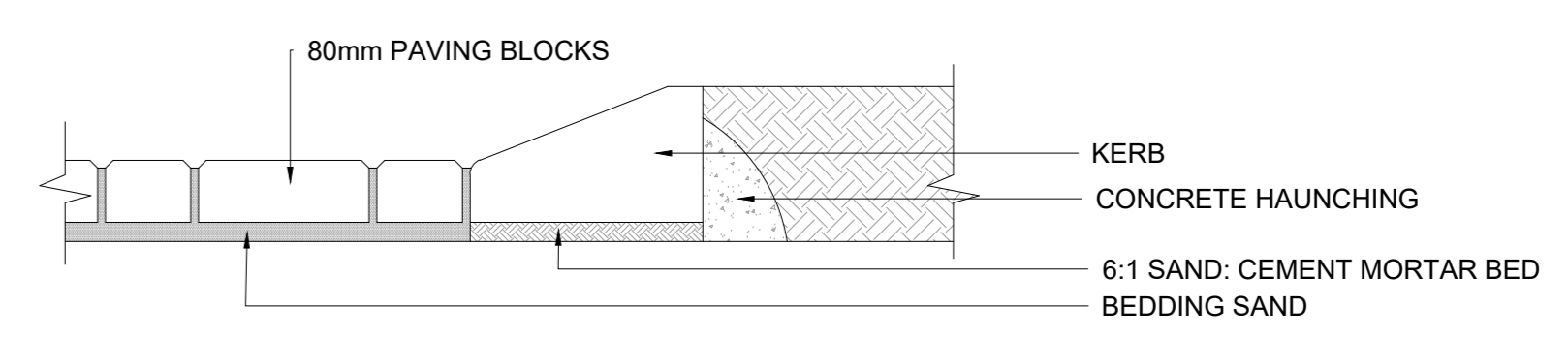


FIG 8(b) DETAIL  
SCALE 1:5

TENDER

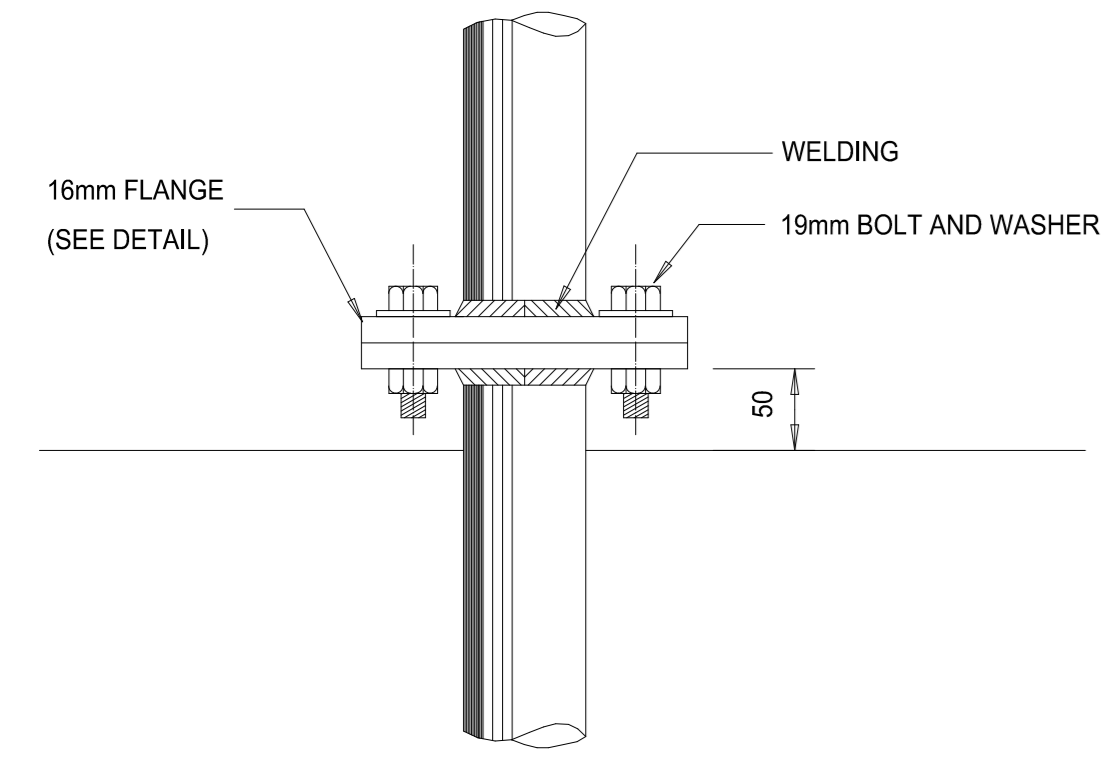
DRAWING CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD 24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za
DRAWN BY:	N. JIYANE	
DESIGN CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	
DESIGNED BY:		



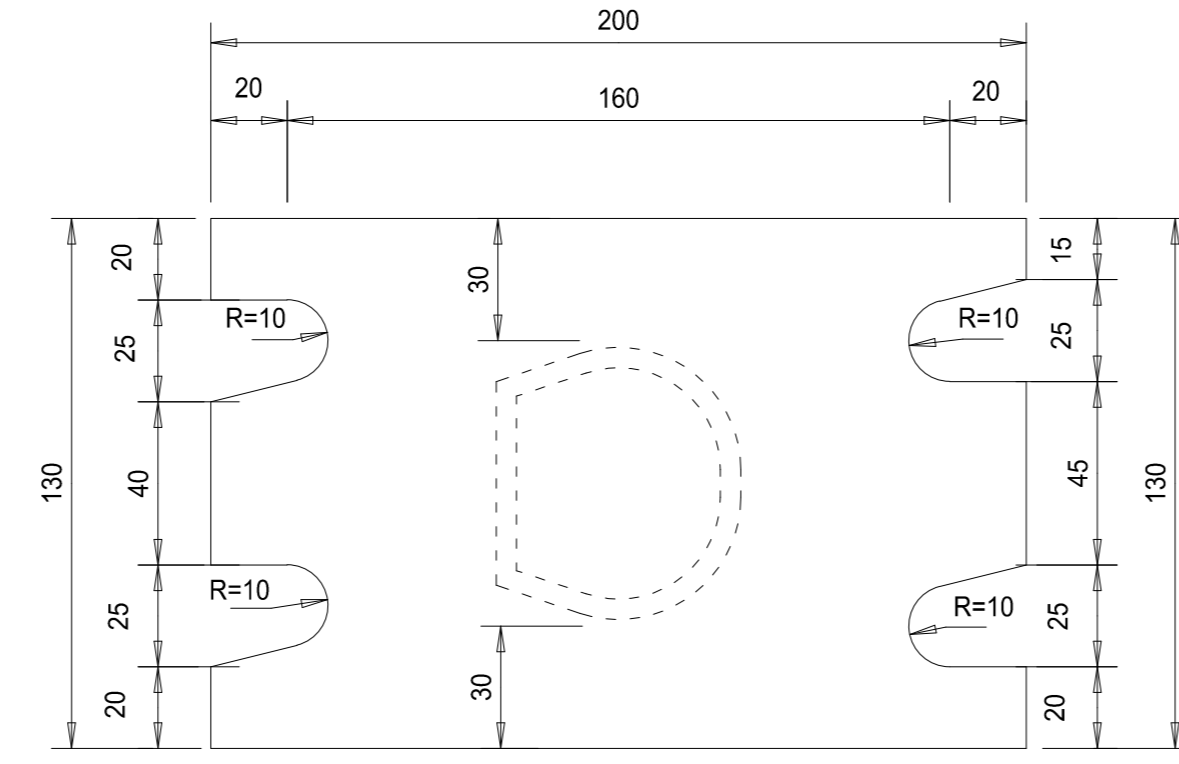
<b>CLIENT</b>		
<b>CITY OF MBOMBELA</b>		
1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111	

<b>CONTRACT NUMBER:</b>		SCALE: AS SHOWN
PROJECT SAWOTINI ROAD		DATE: JULY 2026
DESCRIPTION TYPICAL CROSS SECTION		REVISION B
		DRAWING NO: GG-2026-R-SD-00

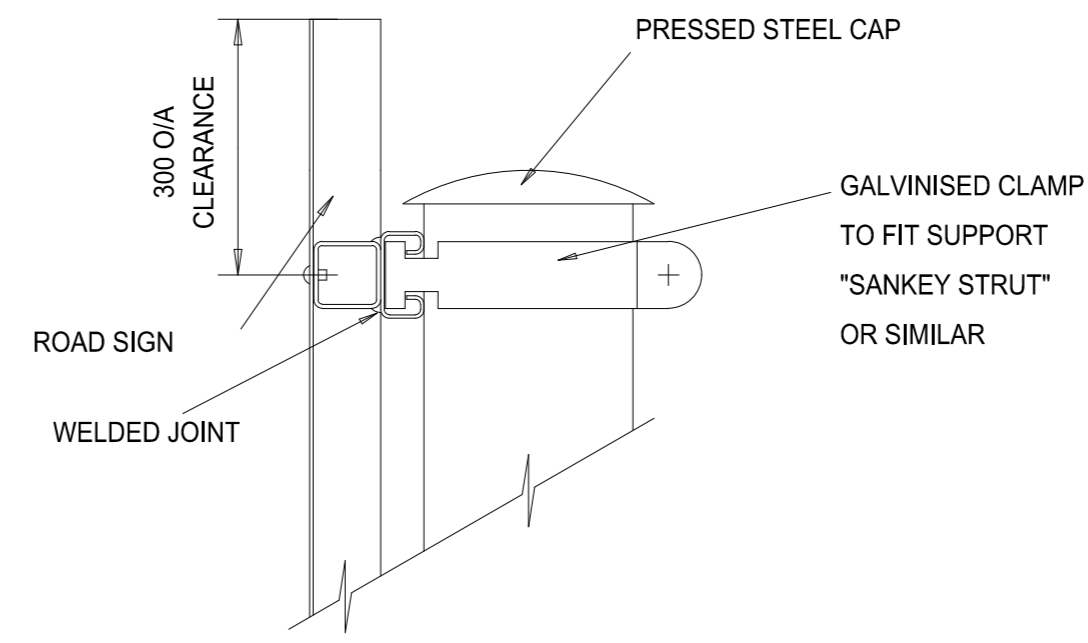




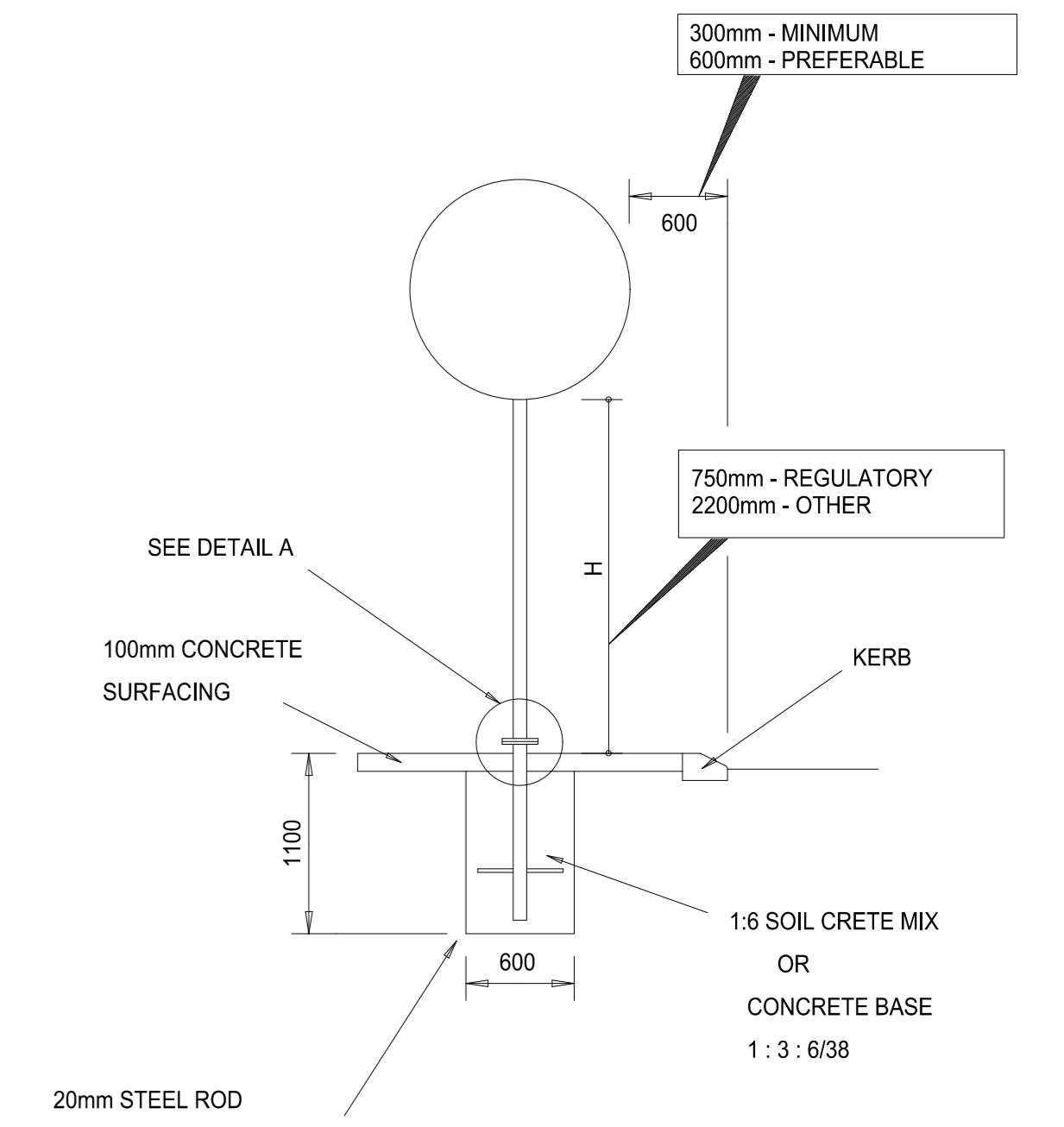
**SIDE**  
SCALE 1:5



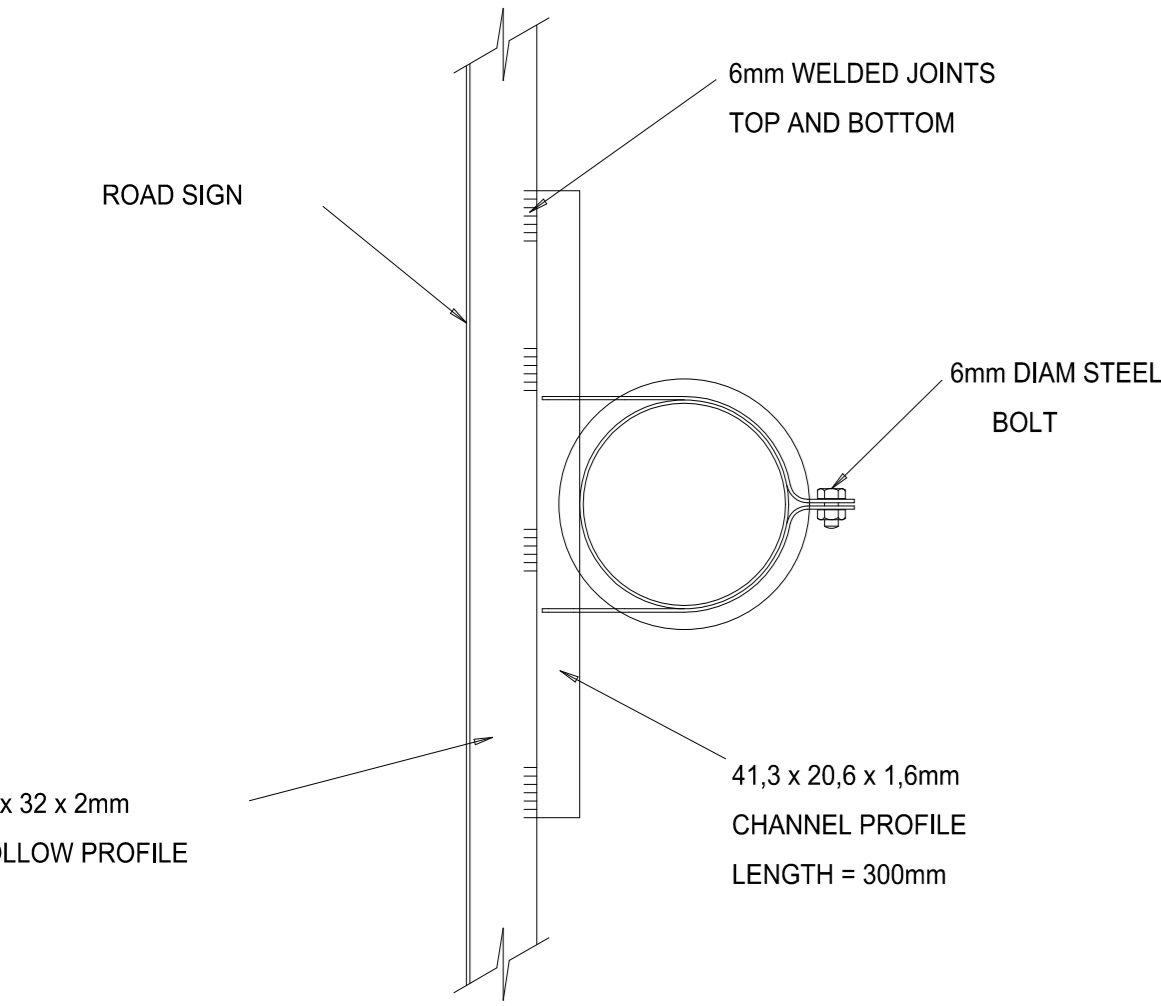
**DETAIL OF FLANGE**  
SCALE 1:2



**DETAIL C**  
SCALE 1:2

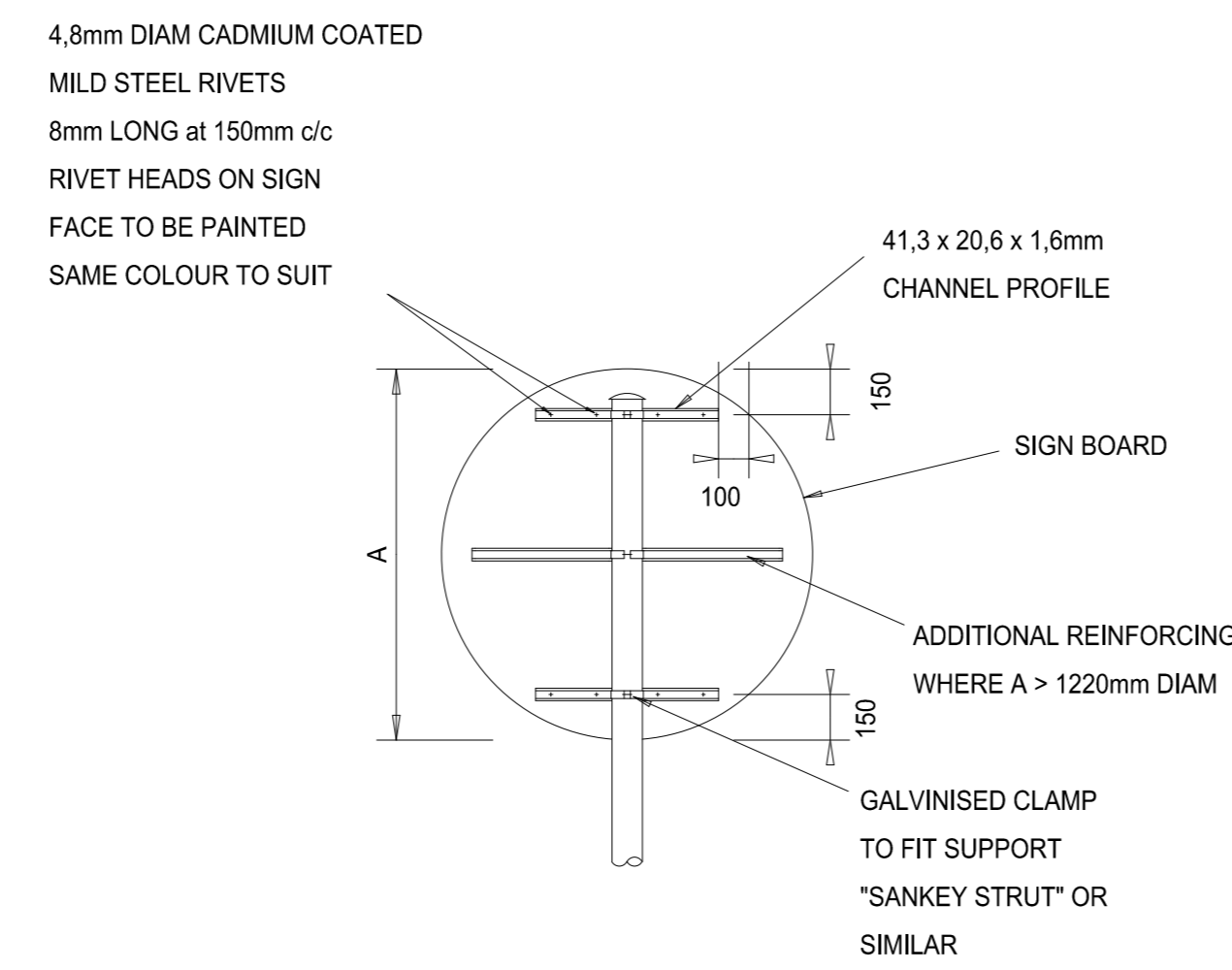


**DETAIL A**  
SCALE 1:30

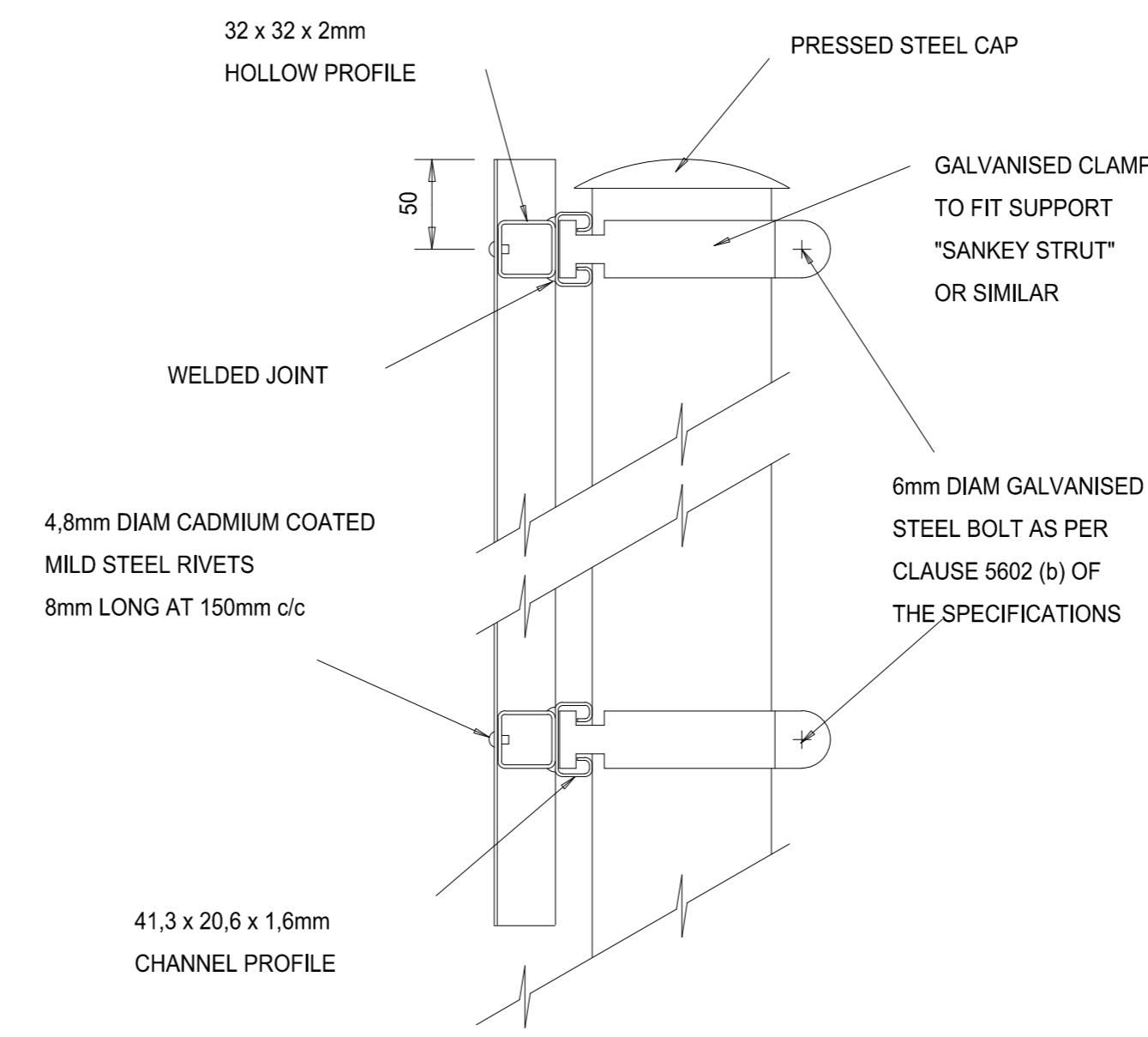


**PLAN**  
SCALE 1:3

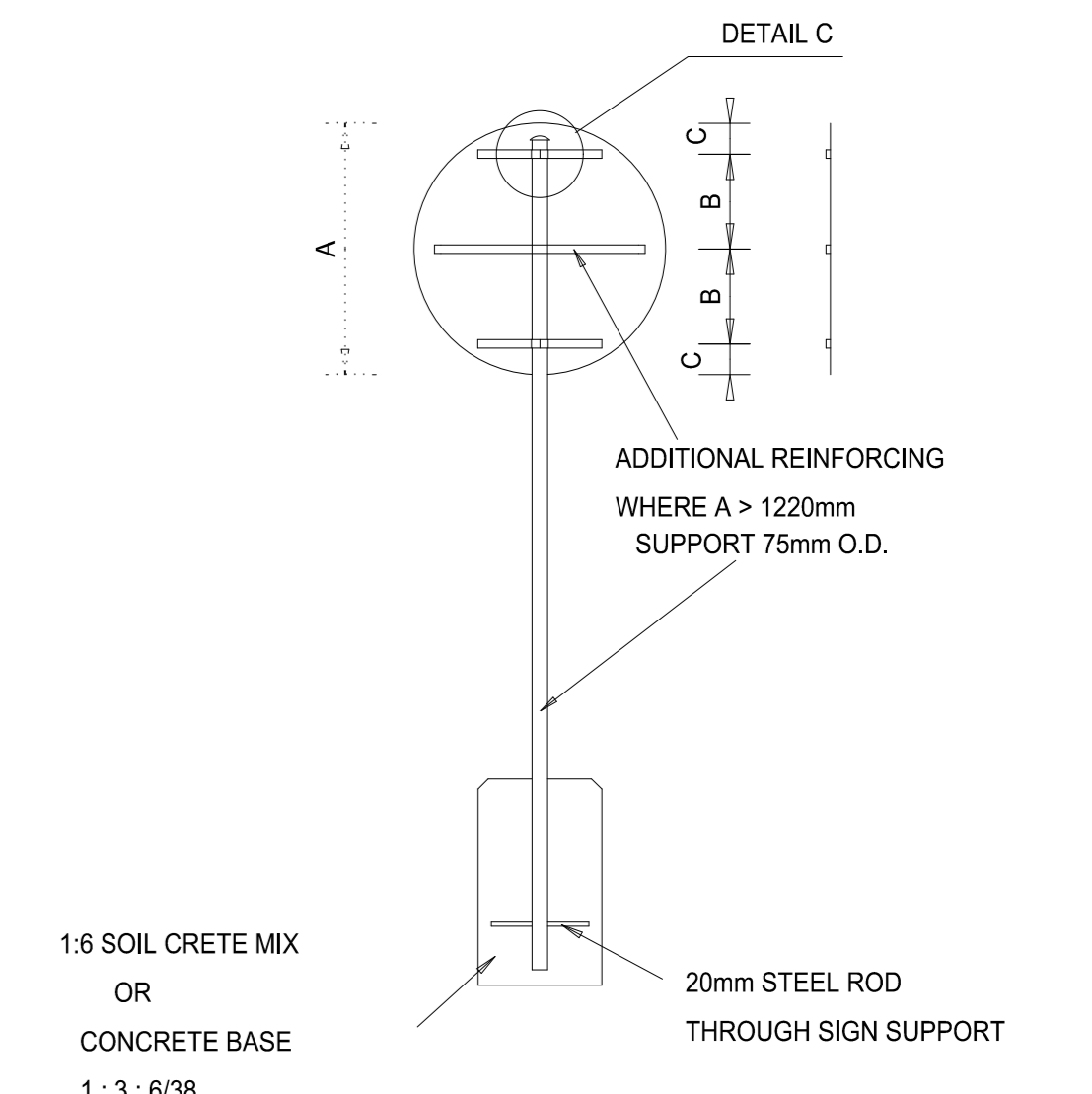
A	NUMBER REINFORCEMENTS	B	C
914	2	514	200
1220	3	460	150



**BACK ELEVATION**  
SCALE 1:4

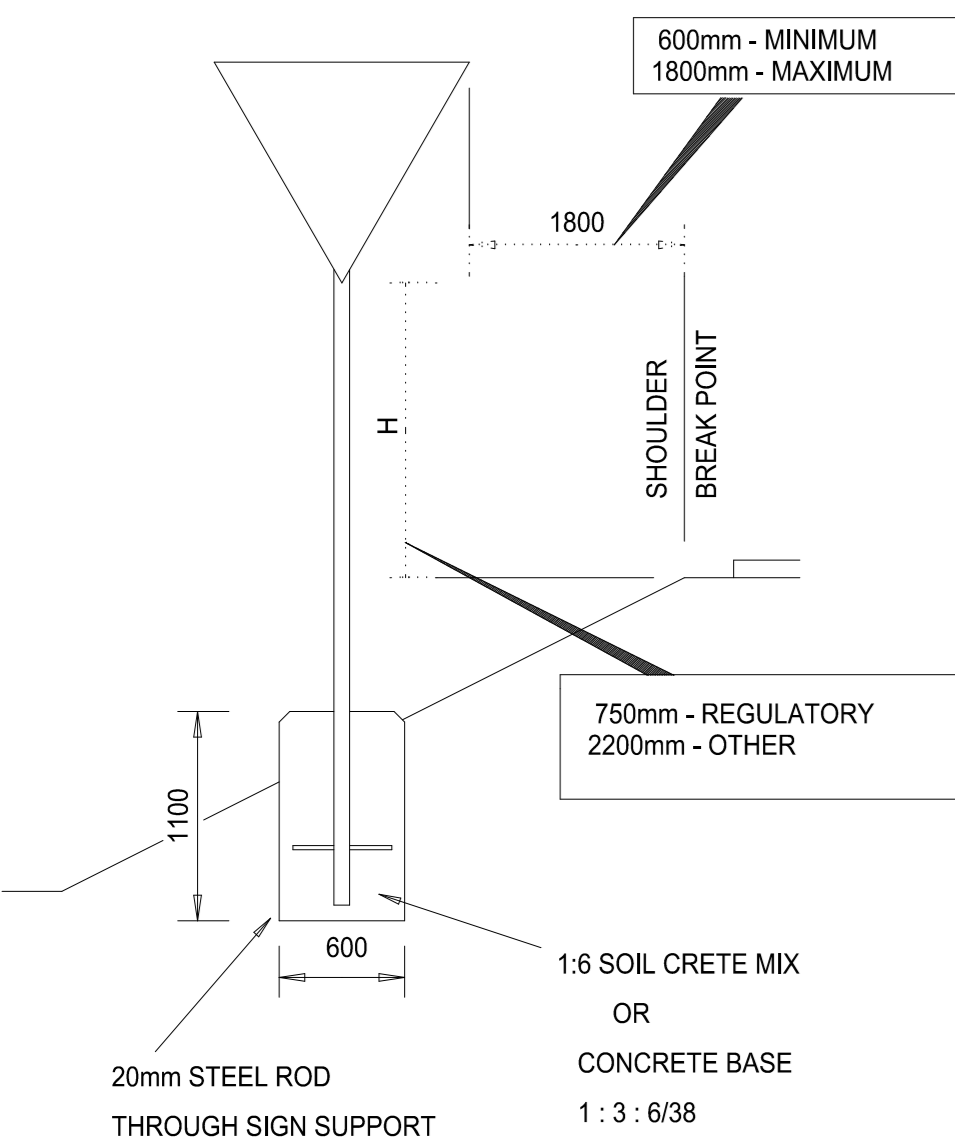


**SIDE ELEVATION**  
SCALE 1:3

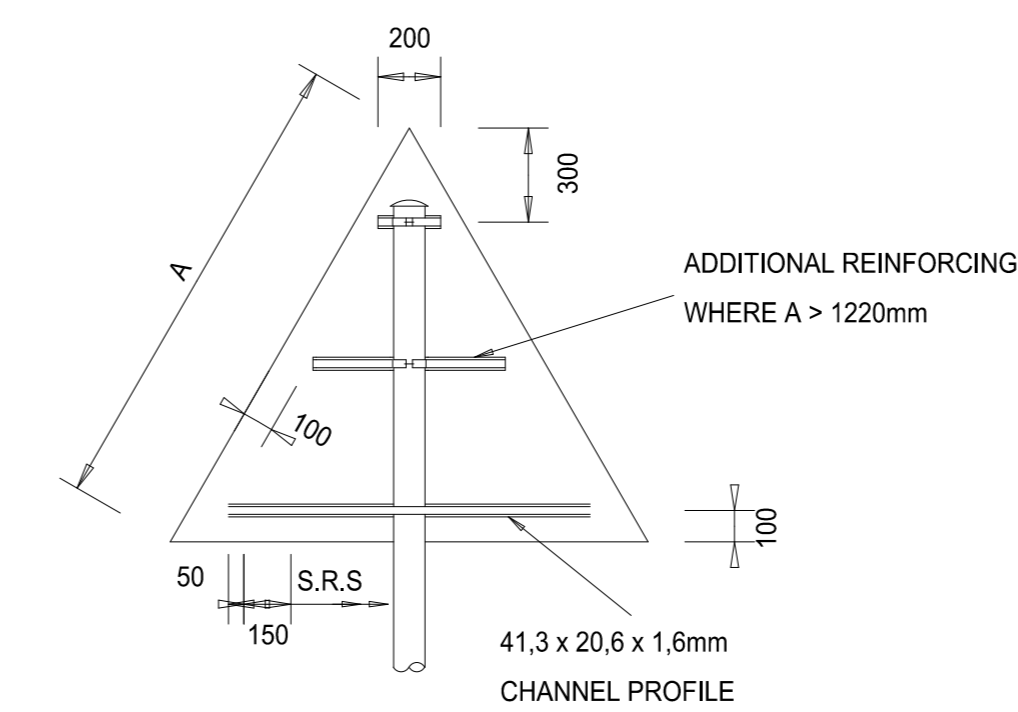
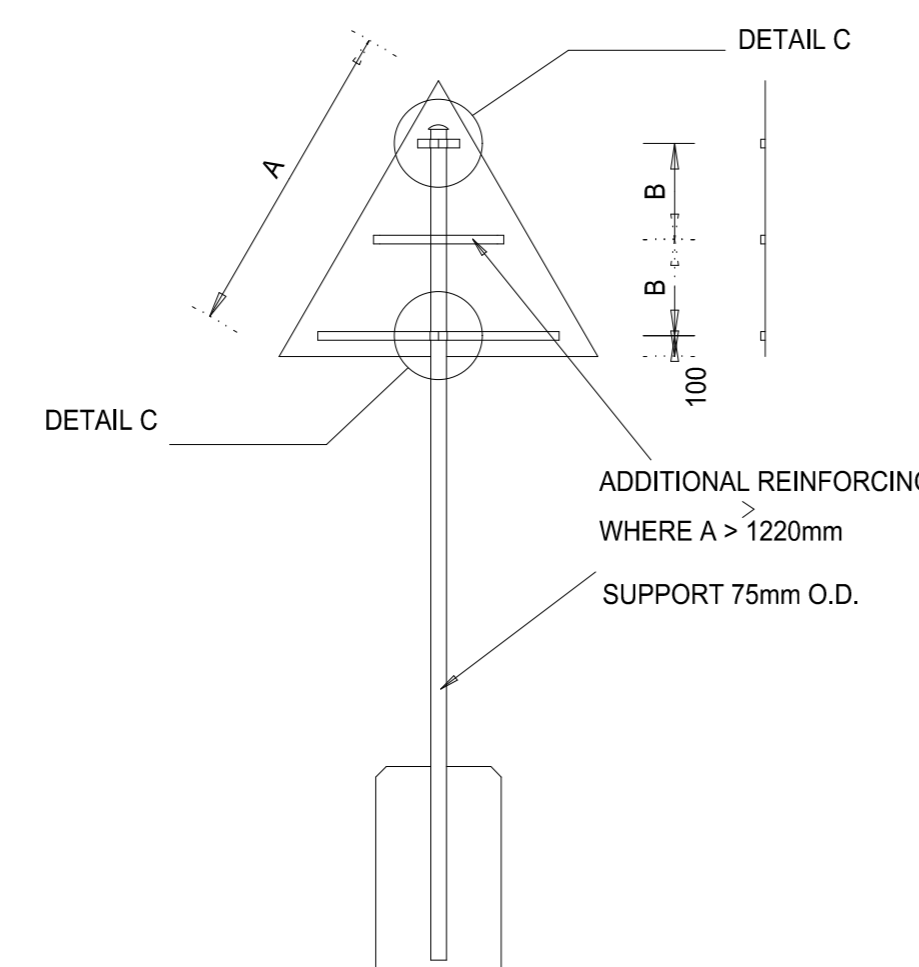


**REINFORCING OF REGULATORY SIGNS**  
SCALE 1:30

**DETAIL B: MOUNTING OF INFORMATORY SIGNS G39 TO G44**

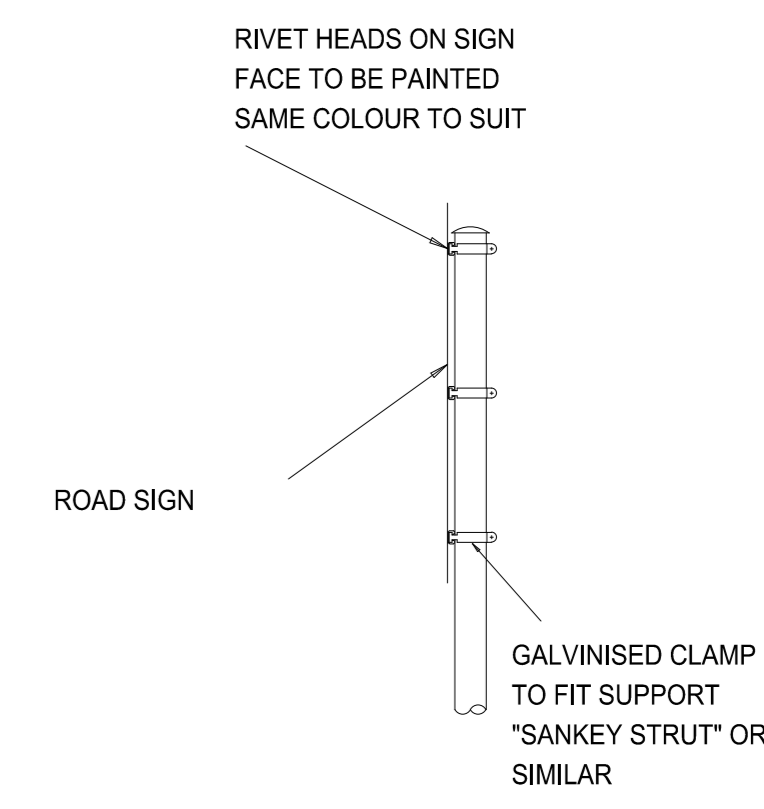


**REINFORCING FOR WARNING SIGNS**  
SCALE 1:30



**BACK ELEVATION**  
SCALE 1:4

A	NUMBER REINFORCEMENTS	B
914	2	572
1220	3	420
1524	3	550



**SIDE ELEVATION**  
SCALE 1:4

**TENDER**

DRAWING CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b>  GILA GROUP (PTY) LTD  24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za
DRAWN BY:	N. JIYANE	
DESIGN CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	
DESIGNED BY:		

<b>CLIENT</b>		
<b>CITY OF MBOMBELA</b>		
1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111	

<b>CONTRACT NUMBER:</b>	SCALE: AS SHOWN
PROJECT EMLOTSHWENI ROAD	DATE: JULY 2026
DESCRIPTION ROAD SIGNS ERECTION	REVISION <b>B</b>
	DRAWING NO: GG-2026-R-SD-09



**TENDER**

DRAWING CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647
DRAWN BY:	N. JIYANE
DESIGN CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647
DESIGNED BY:	T. MAGAGULA Pr Tech Eng : 2019300647

**CONSULTANT**

**GILA GROUP (PTY) LTD**

24 OPAL STREET  
WEST ACRES  
MBOMBELA  
1200  
TEL: +27 67 776 - 6723  
EMAIL: admin@gilagroup.co.za



EXCELLENCE OUR HEARTBEAT

**CLIENT**

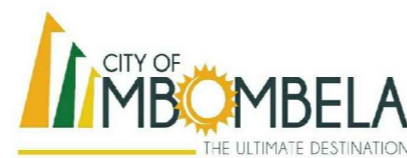
**CITY OF MBOMBELA**

1 NEL STREET  
NELSPRUIT  
1200

Fax.: (013) 759 2070

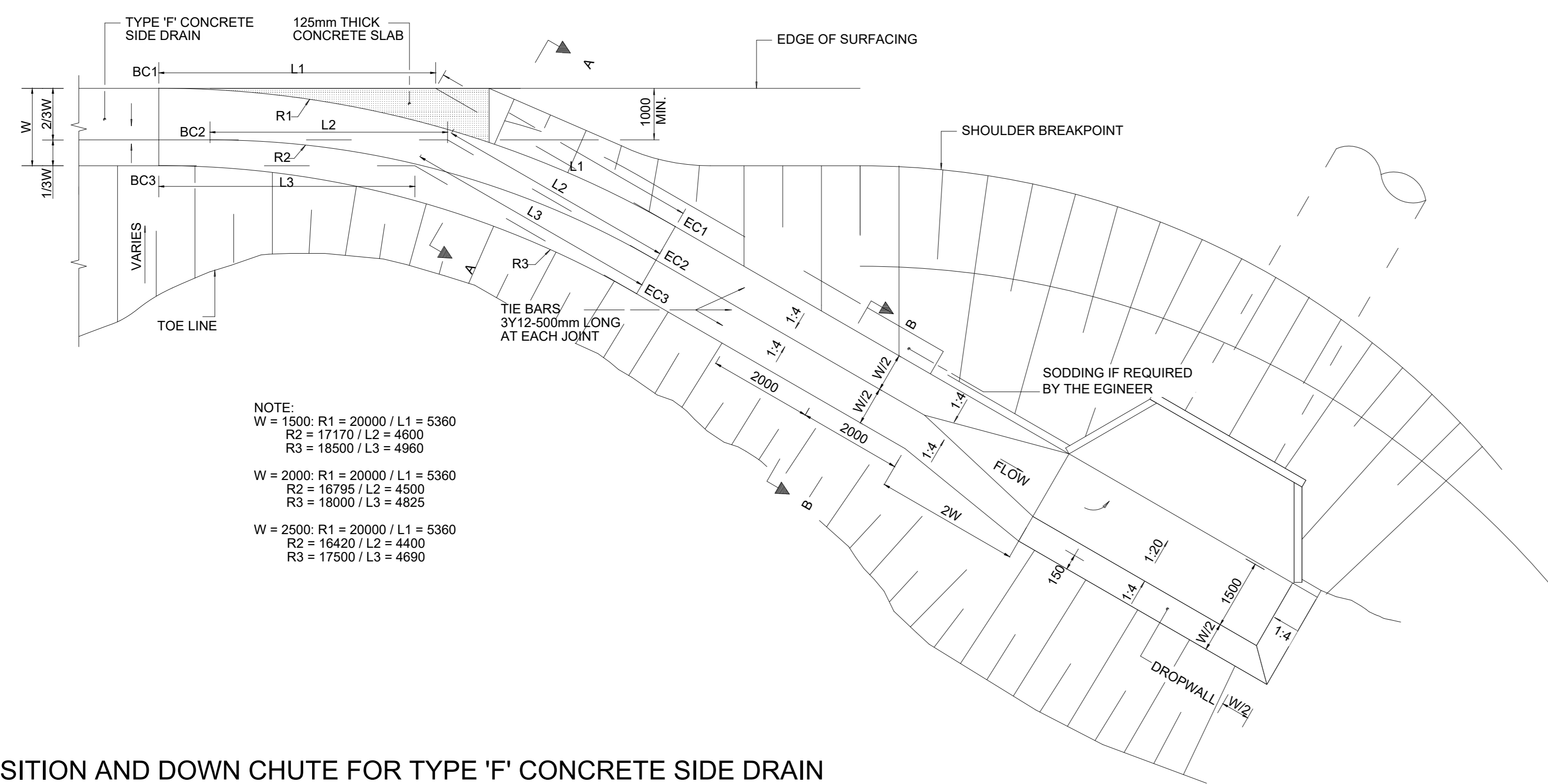
P. O. BOX 45  
NELSPRUIT  
1200

Tel.: (013) 759 9111

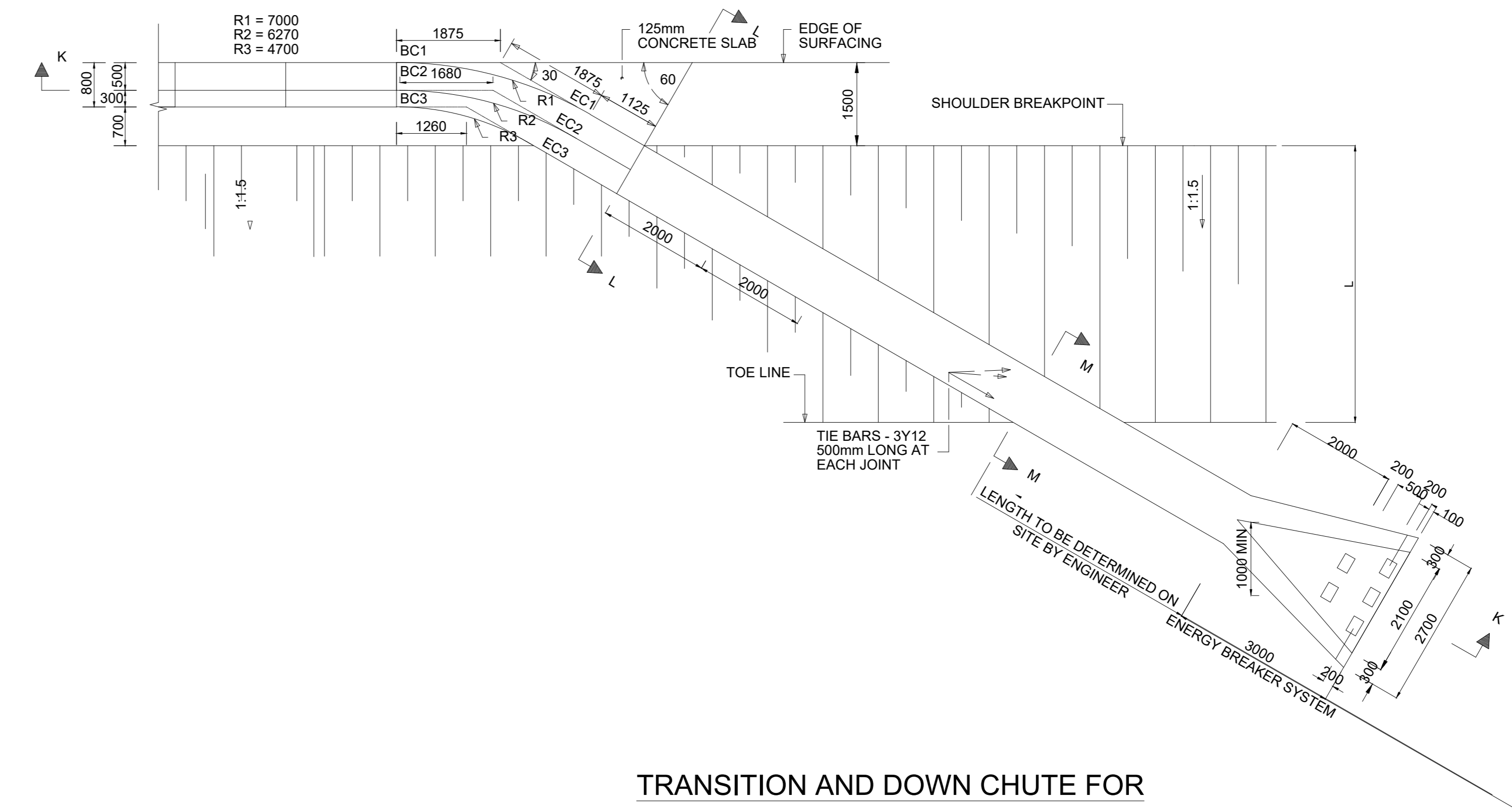


THE ULTIMATE DESTINATION

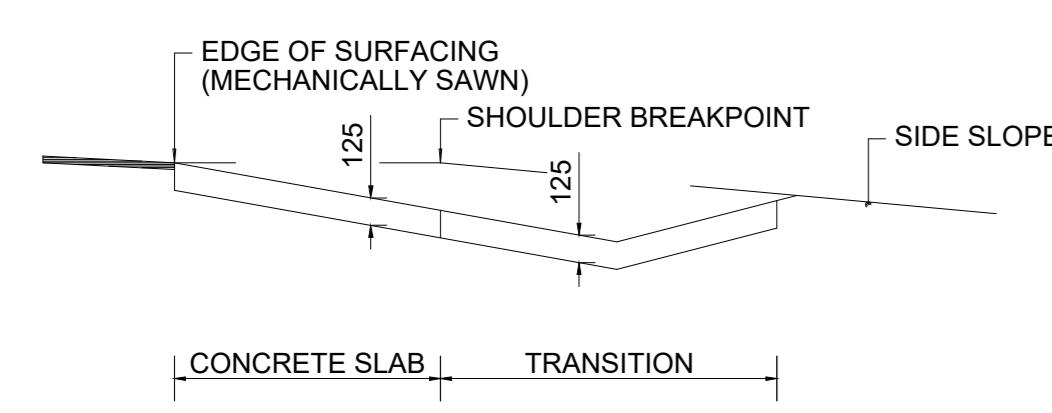
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<b>PROJECT</b>	SAWOTINI ROAD
<b>DESCRIPTION</b>	CROSS SECTIONS
<b>SCALE:</b>	1:125
<b>DATE:</b>	JULY 2026
<b>REVISION</b>	B
<b>DRAWING NO:</b>	GG-2023-CS-01



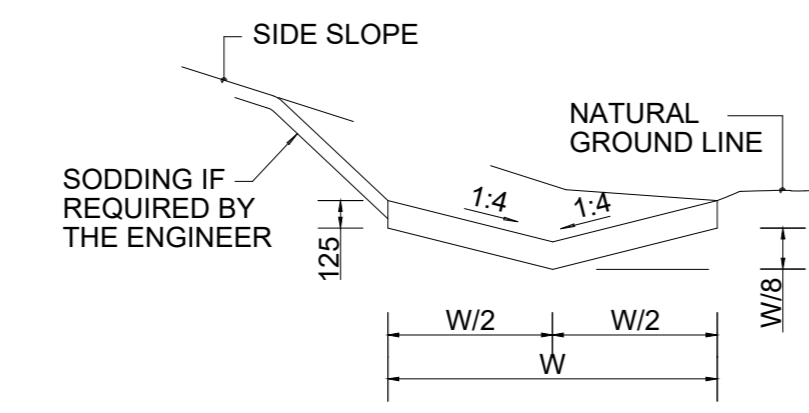
TRANSITION AND DOWN CHUTE FOR TYPE 'F' CONCRETE SIDE DRAIN  
SCALE 1:50



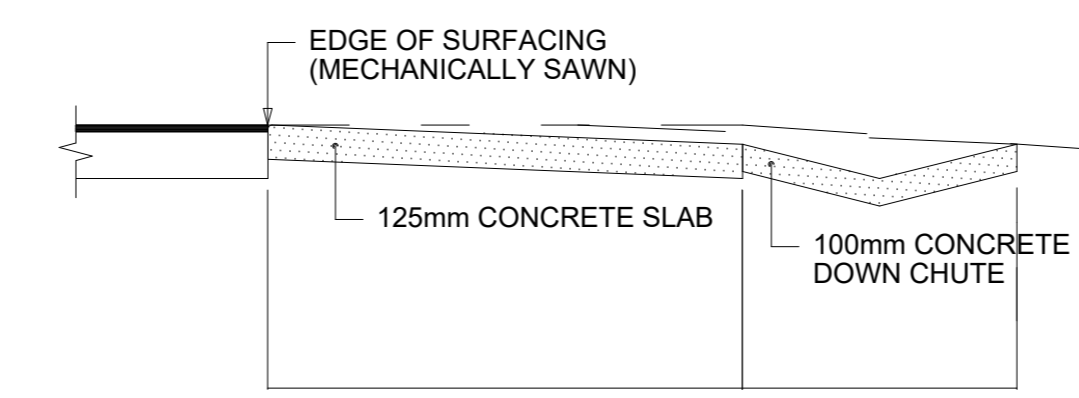
TRANSITION AND DOWN CHUTE FOR TYPE 'A' CONCRETE SIDE DRAIN  
SCALE 1:50



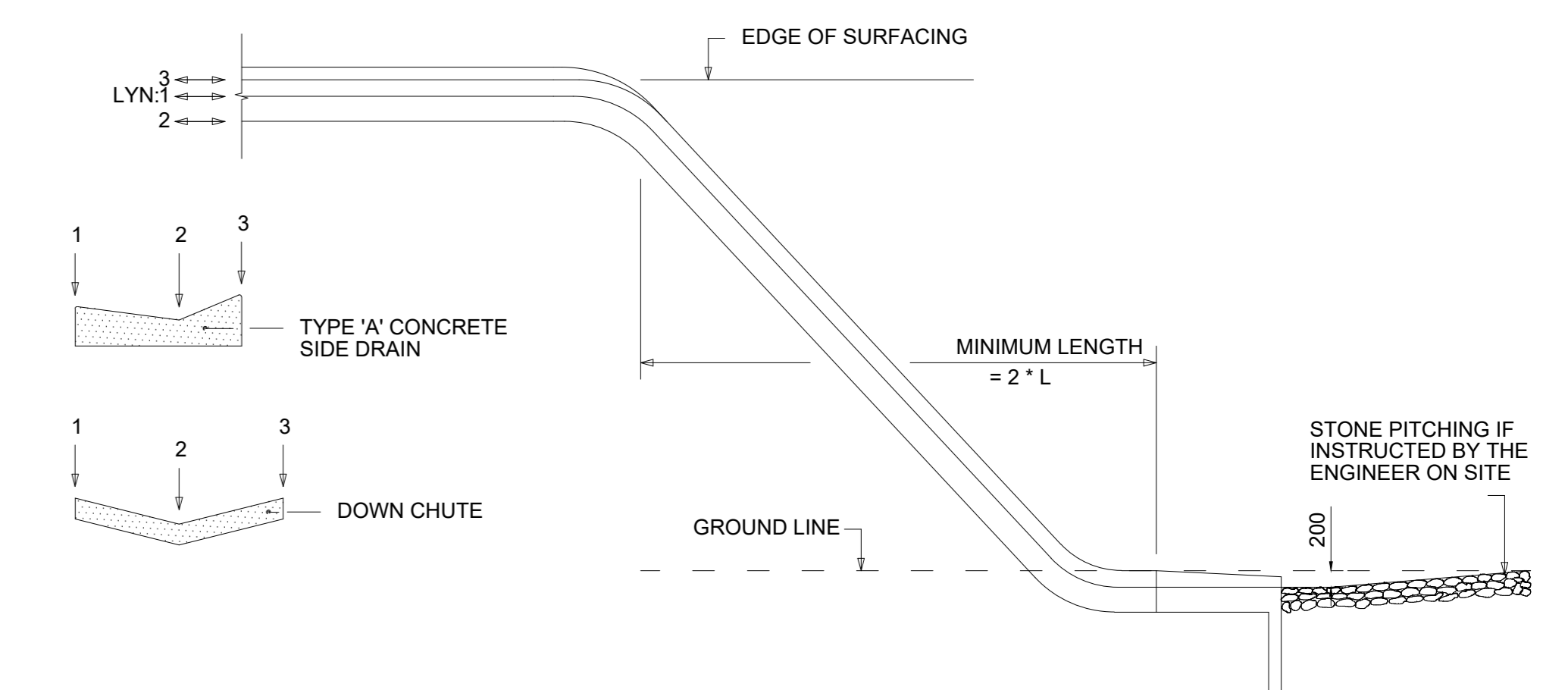
SECTION A-A  
SCALE 1:25



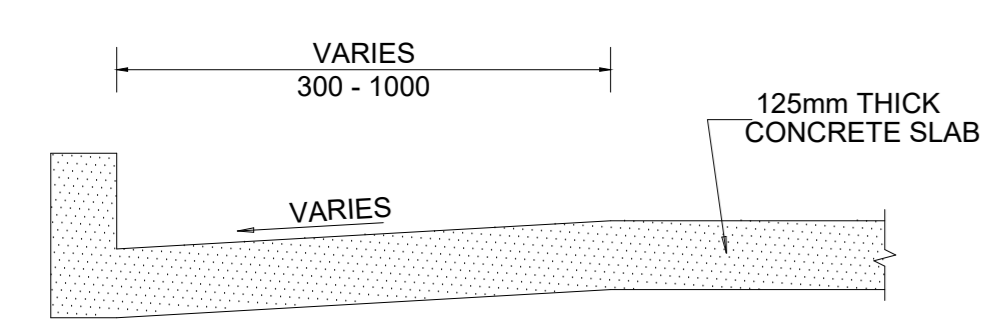
SECTION B-B  
SCALE 1:25



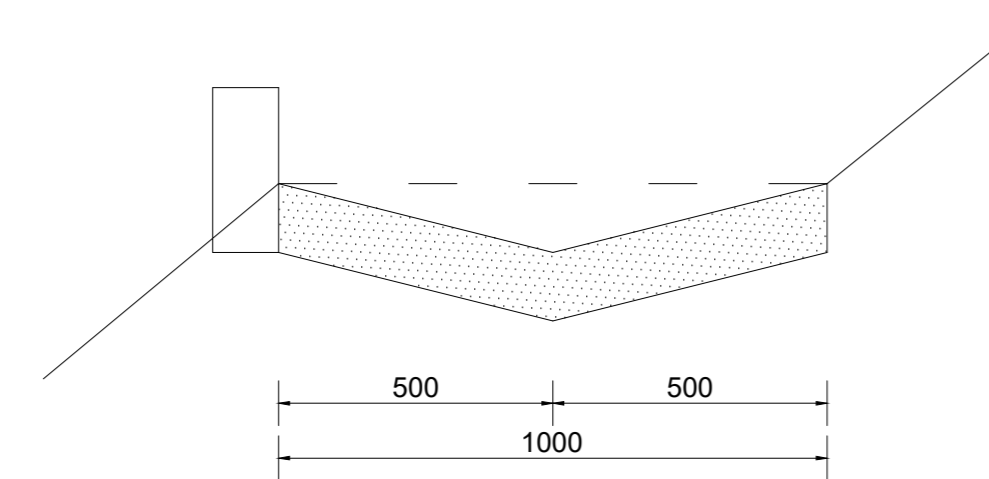
SECTION L-L  
SCALE 1:20



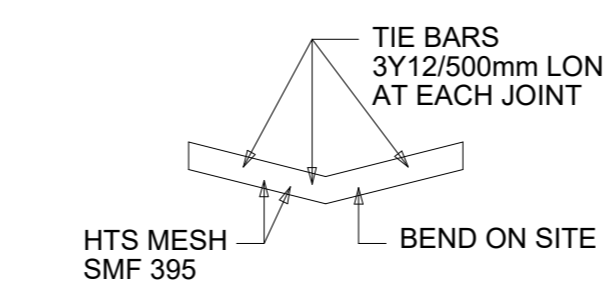
SECTION K-K  
SCALE: SCHEMATIC



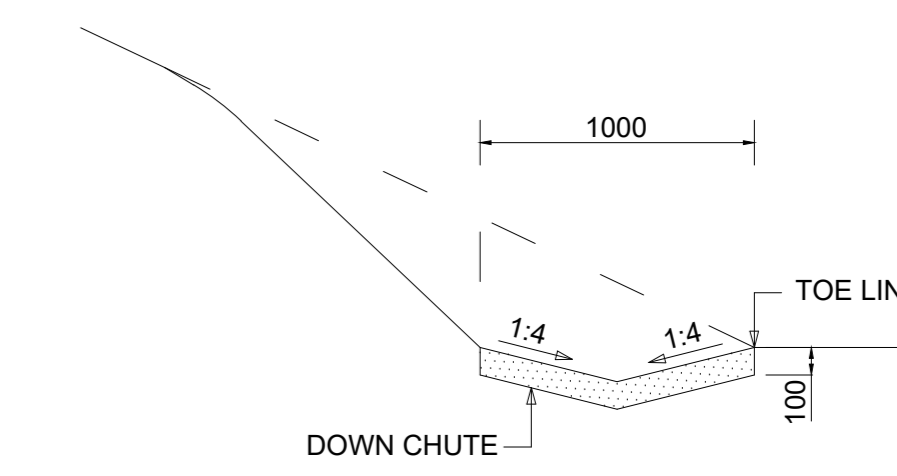
SECTION E-E  
SCALE 1:10



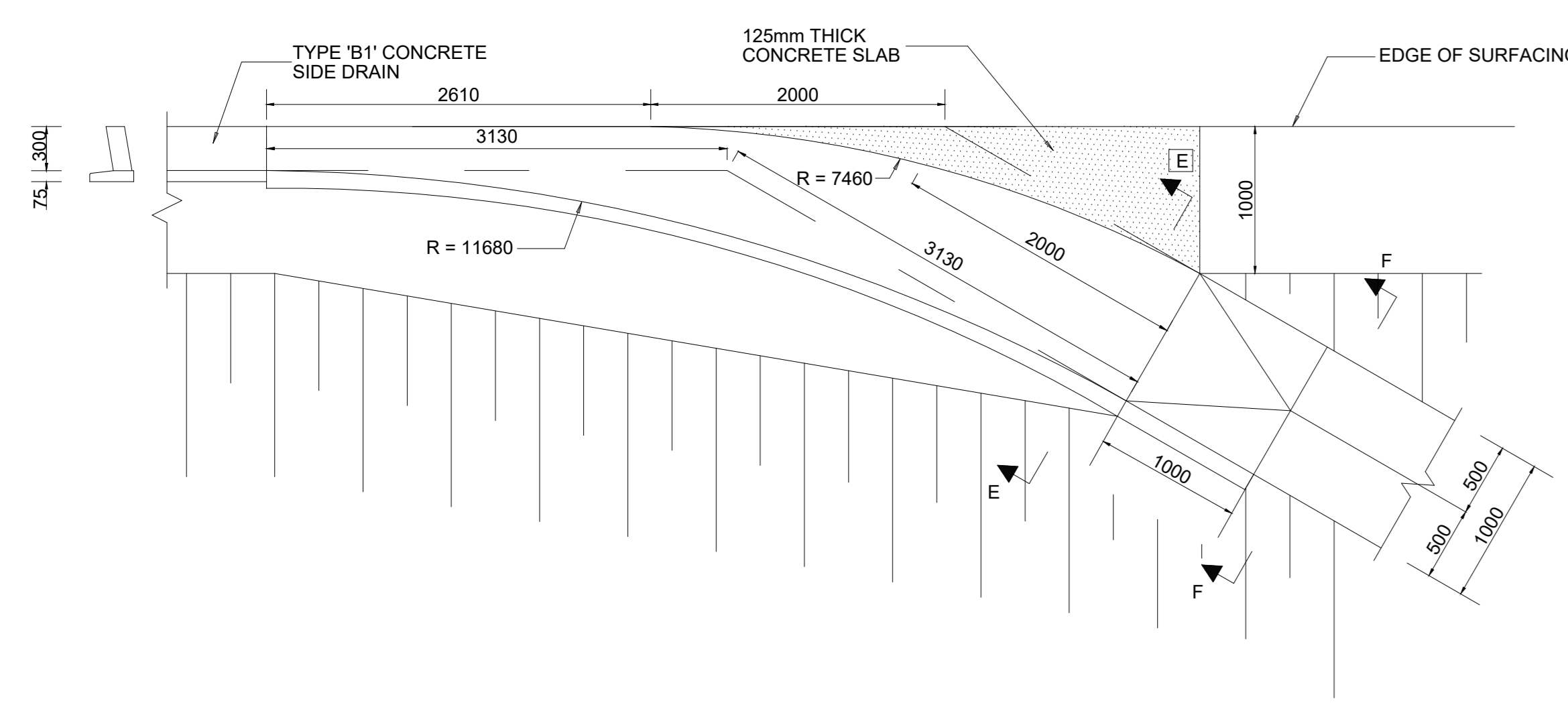
SECTION F-F  
SCALE 1:10



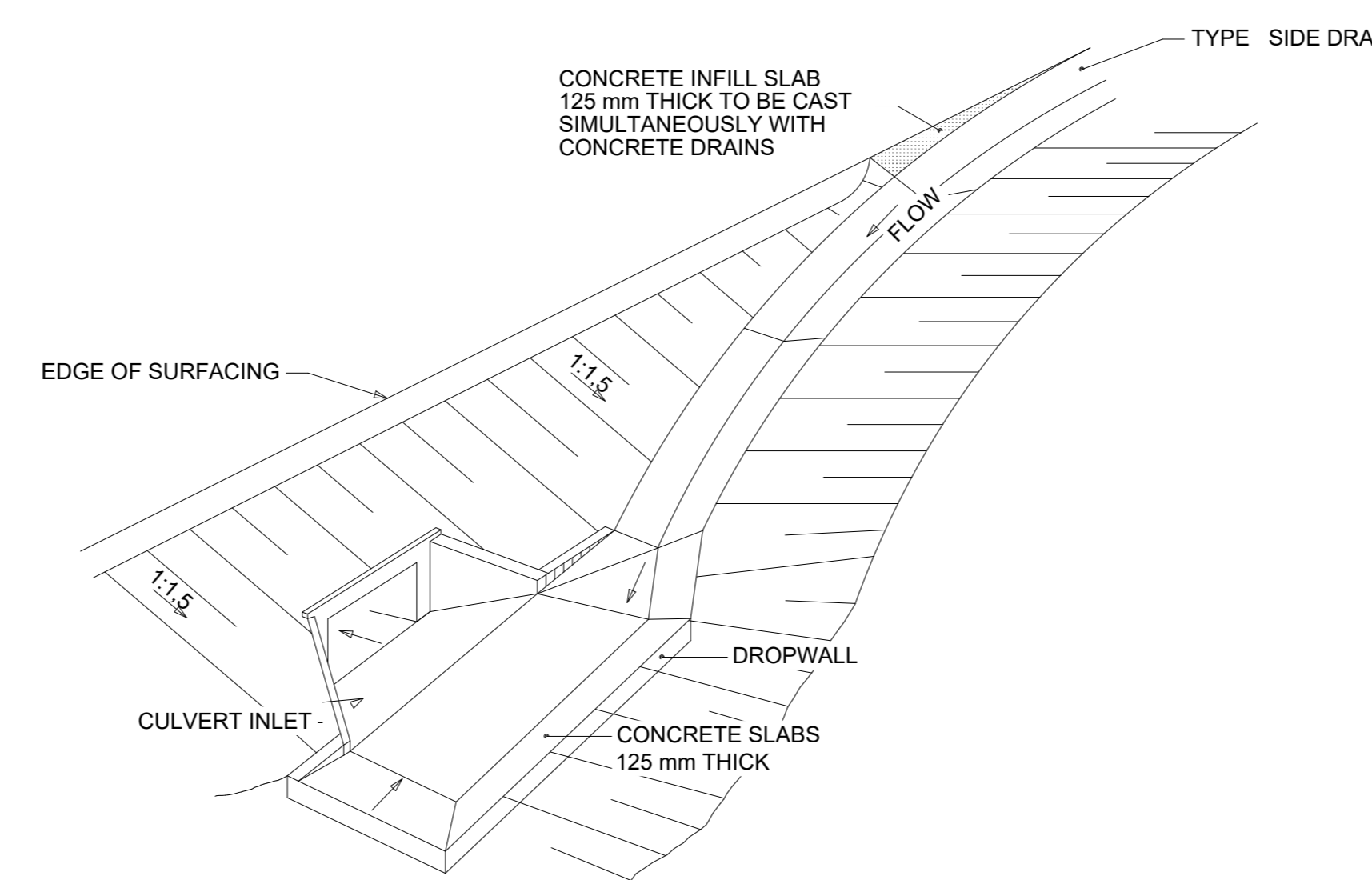
SECTION M-M (REINFORCEMENT)  
SCALE 1:20



SECTION M-M  
SCALE 1:20

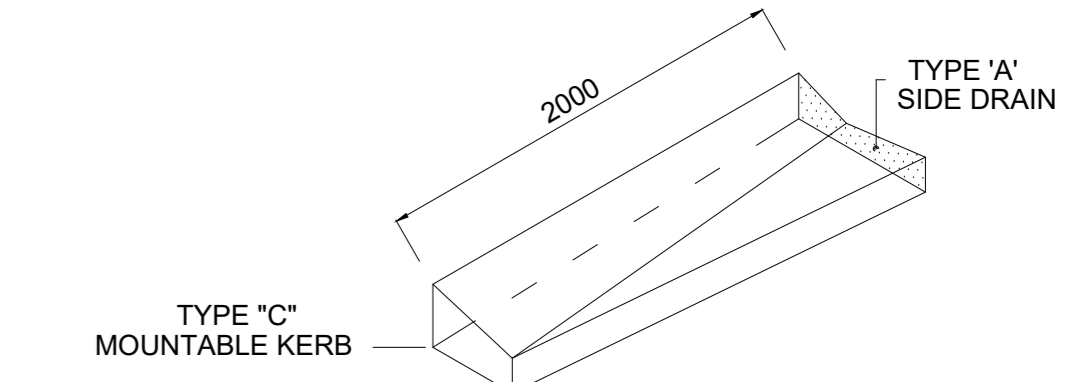


TRANSITION AND DOWN CHUTE FOR TYPE 'B1' CONCRETE SIDE DRAIN  
SCALE 1:25



DETAIL OF CONCRETE DRAIN AT DISH INLET  
SCHEMATIC

- NOTE:
1. ALL CAST IN-SITU SIDE DRAINS, TRANSITIONS AND DOWN CHUTES SHOWN ON THIS PLAN, MUST BE OF CLASS 30/19 CONCRETE.
  2. SIDE DRAINS AND DOWN CHUTES MUST BE CAST IN ALTERNATIVE LENGTHS OF 2.0m MAX. WITH EXPANSION JOINTS EVERY 10m.
  3. SIDE DRAINS MUST ONLY BE CAST AFTER THE SURFACING HAS BEEN COMPLETED AND THE EDGES HAVE BEEN MECHANICALLY SAWN.
  4. ALL EXPOSED CORNERS MUST BE ROUNDED OFF TO A RADIUS OF 10mm.
  5. THE CLASS OF SURFACE FINISH IS INDICATED AS (F1) - (F2) - (U2) - (F) - FORMED SURFACES (U) - UNFORMED SURFACES
  6. LENGTH OF DOWN CHUTE TO BE DETERMINED ON SITE, BY THE ENGINEER.



TRANSITION - TYPE 'A' CONCRETE SIDE DRAIN TO TYPE 'C' MOUNTABLE KERB  
SCALE: SCHEMATIC

TENDER

DRAWING CHECKED:	T. MAGAGULA Pr. Tech Eng : 2019300647	<b>CONSULTANT</b> <b>GILA GROUP (PTY) LTD</b> 24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za
DRAWN BY:	N. JIYANE	
DESIGN CHECKED:	T. MAGAGULA Pr. Tech Eng : 2019300647	
DESIGNED BY:		



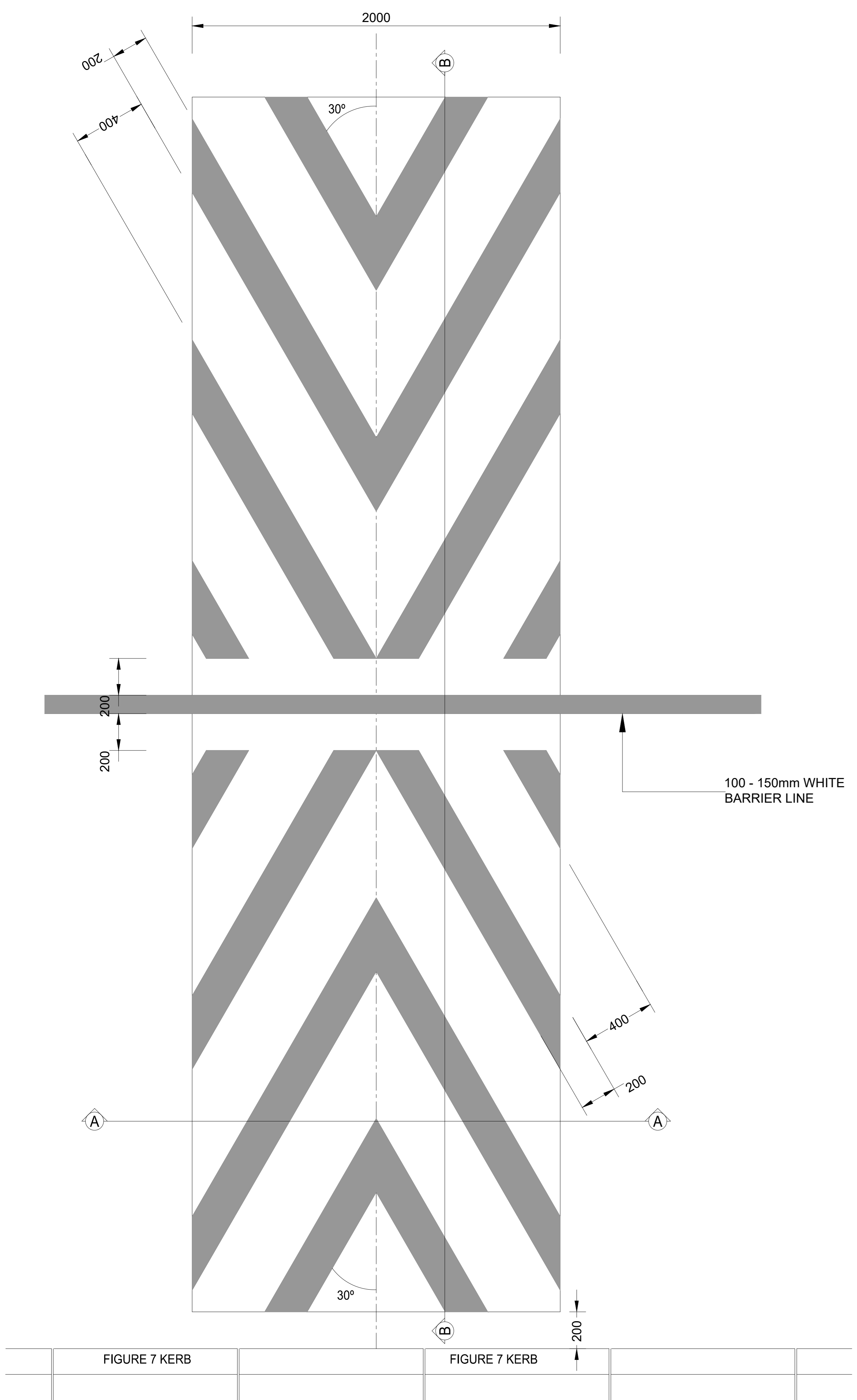
1 NEL STREET  
NELSPRUIT  
1200  
Fax.: (013) 759 2070

CLIENT  
CITY OF MBOMBELA

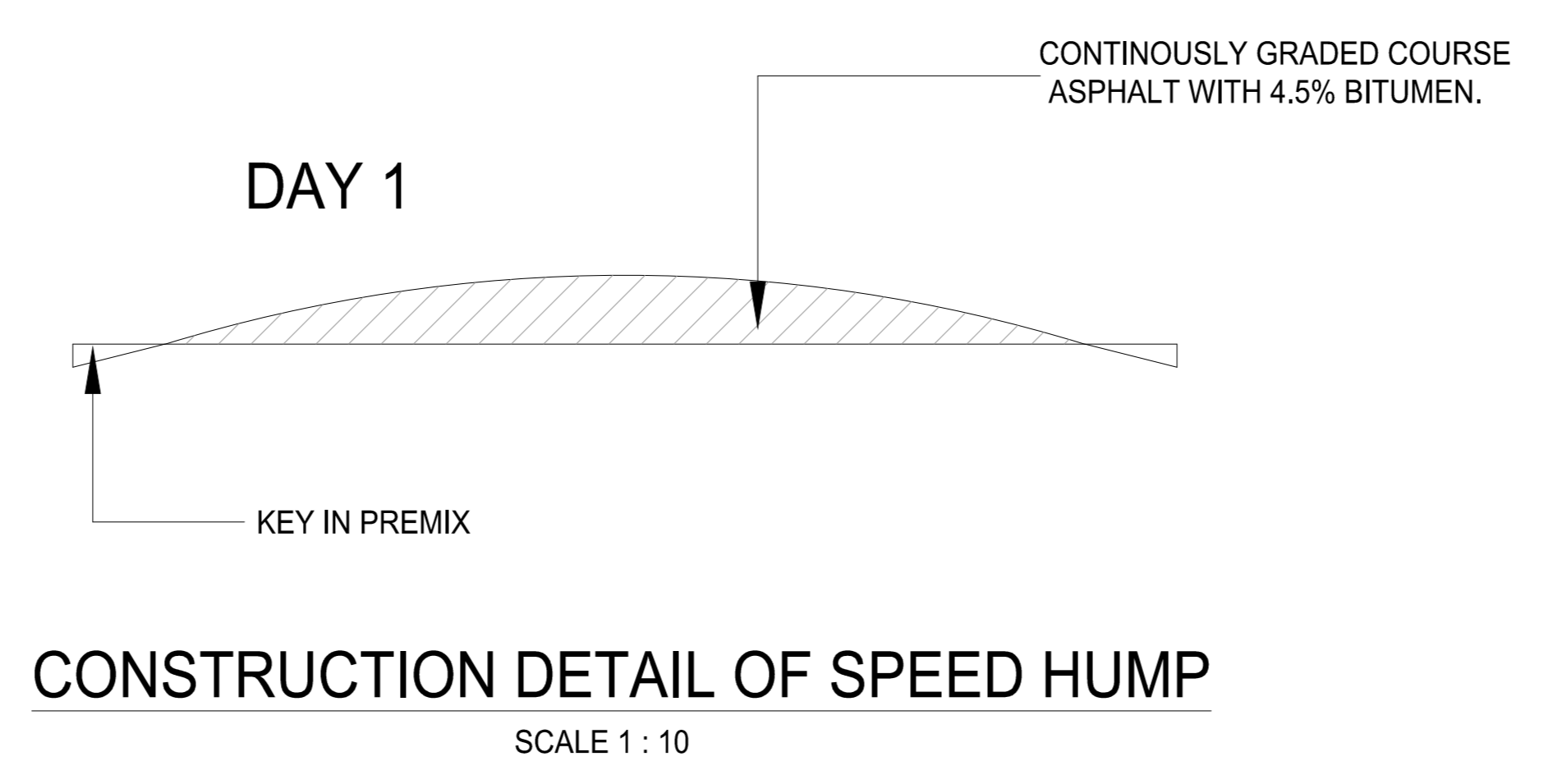
P. O. BOX 45  
NELSPRUIT  
1200  
Tel.: (013) 759 9111



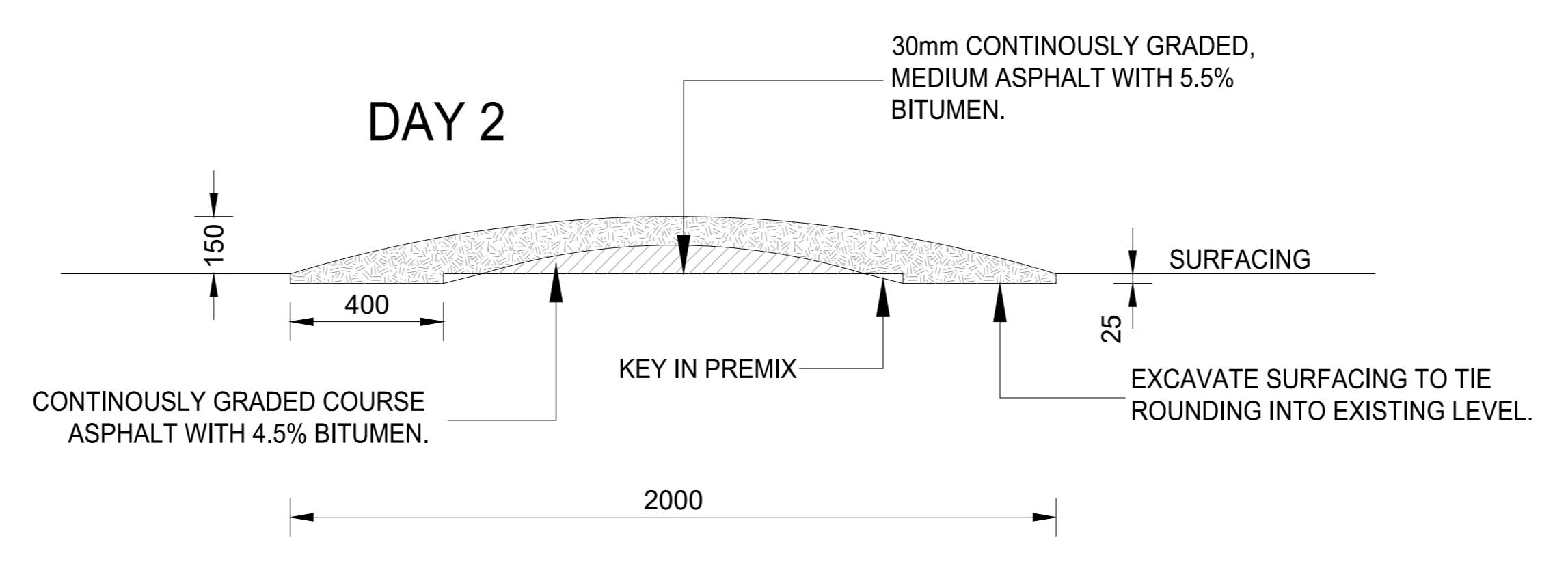
CONTRACT NUMBER:	SCALE: AS SHOWN
PROJECT SAWOTINI ROAD AND SAWOTINI ADD-ON	DATE: JULY 2026
DESCRIPTION CONCRETE DRAINS DETAILS	REVISION B
	DRAWING NO: GG-2026-RD-S03



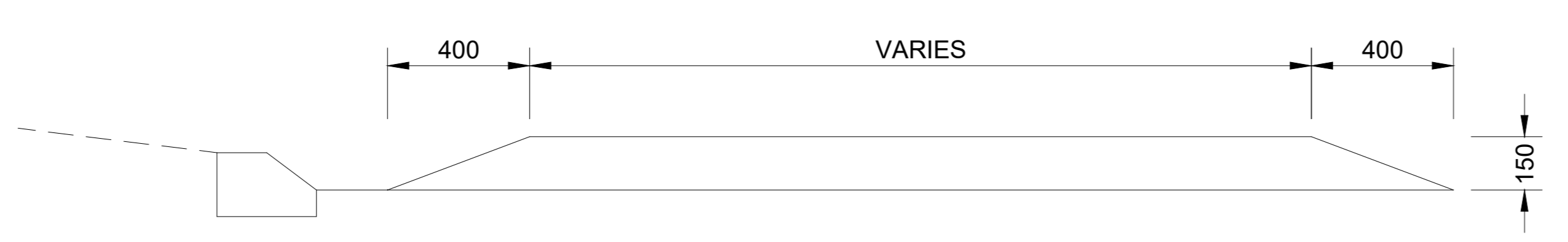
**SPEED HUMP DETAILS**  
SCALE 1 : 20



**CONSTRUCTION DETAIL OF SPEED HUMP**  
SCALE 1 : 10



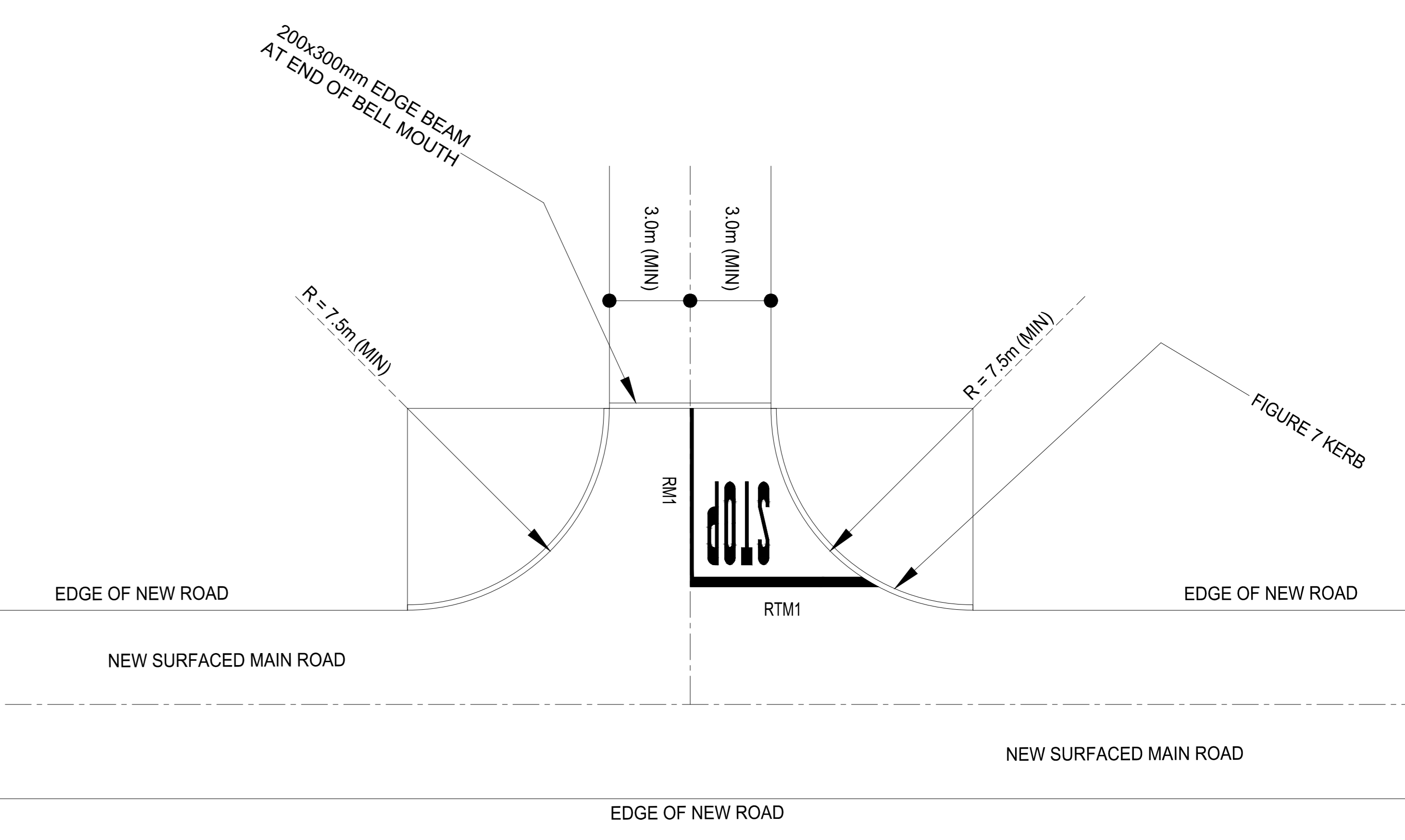
**SECTION A - A**  
SCALE 1 : 20



**SECTION B - B  
DETAIL OF SPEED HUMP**  
SCALE 1 : 20

**NOTES:**


1. SHOULD THE ASPHALT COOL-OFF BEFORE SECOND LAYER IS PLACED, A SECOND LAYER OF TACK COAT SHOULD BE APPLIED.
2. PRIME COAT - 60/70 PEN BITUMEN.
3. TACK COAT - 30% CAT. EMULSION
4. ALL SIGNAGE TO BE IN ACCORDANCE WITH THE ROAD TRAFFIC SIGNS MANUAL.



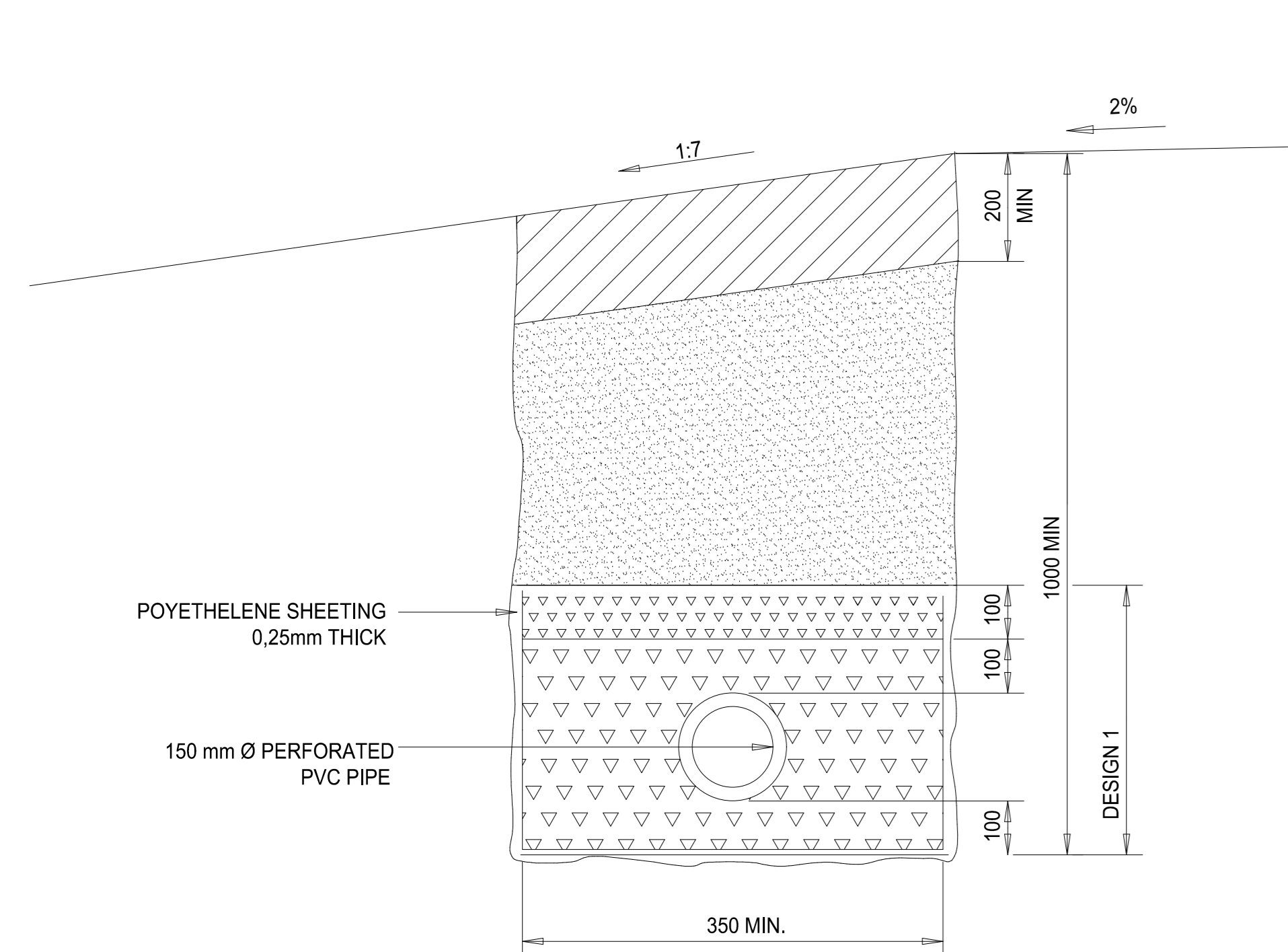
**TYPICAL DETAIL FOR ADJOINING STREETS**  
SCALE 1 : 200

TENDER

DRAWING CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD  24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za
DRAWN BY:	N. JIYANE	
DESIGN CHECKED:	T. MAGAGULA Pr Tech Eng : 2019300647	
DESIGNED BY:		

<b>CLIENT</b>		
<b>CITY OF MBOMBELA</b>		
1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111	

<b>CONTRACT NUMBER:</b>		SCALE: AS SHOWN
PROJECT EMLOTSHWENI ROAD		DATE: JULY 2026
DESCRIPTION		REVISION B
INTERSECTION TYPE AND SPEED HUMP DETAIL		DRAWING NO: GG-2026-R-SD-07

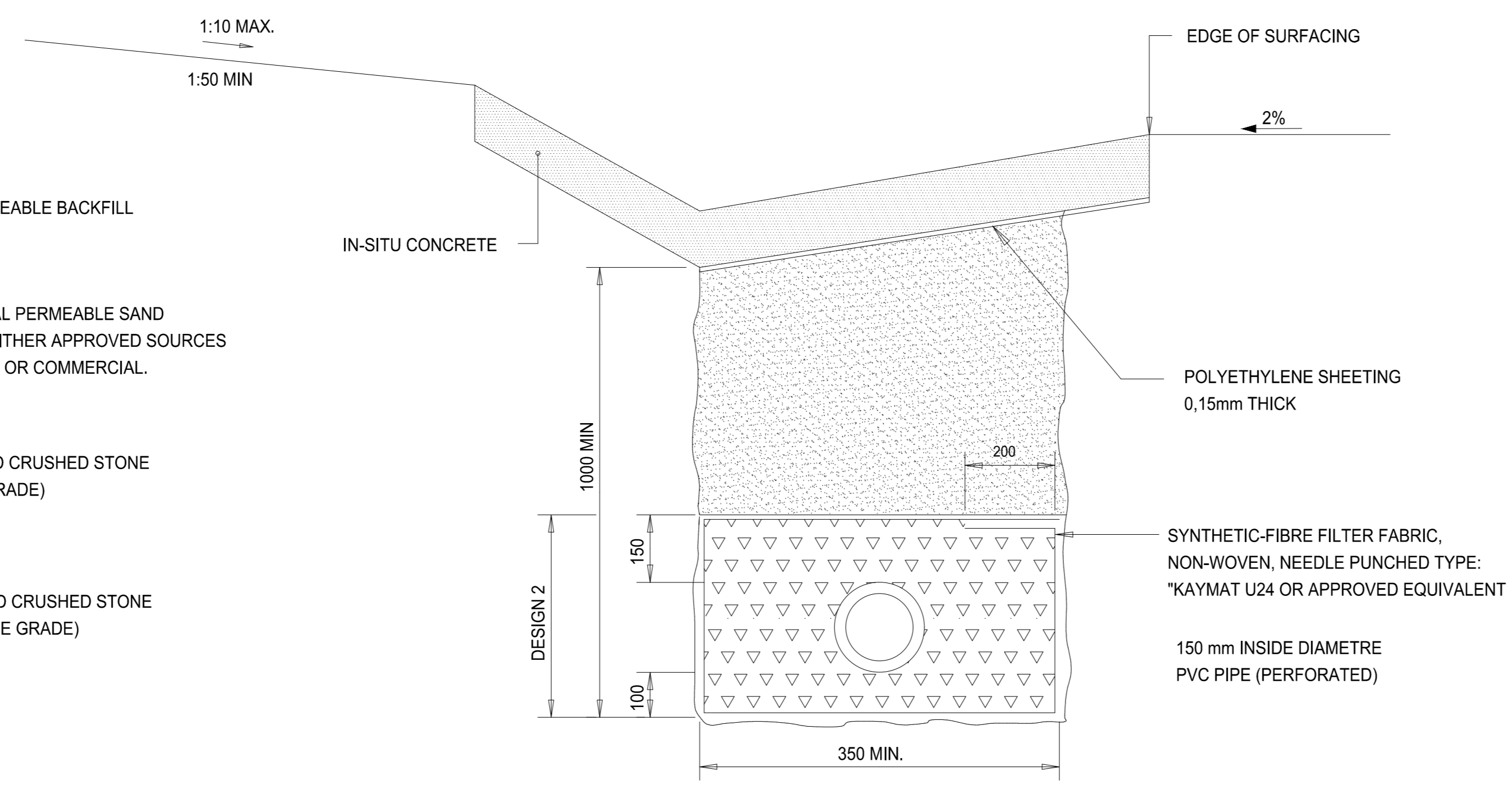


**SHALLOW CUT CONDITION  
TYPE "A" SUBSURFACE DRAIN**  
N.T.S.

**LEGEND**

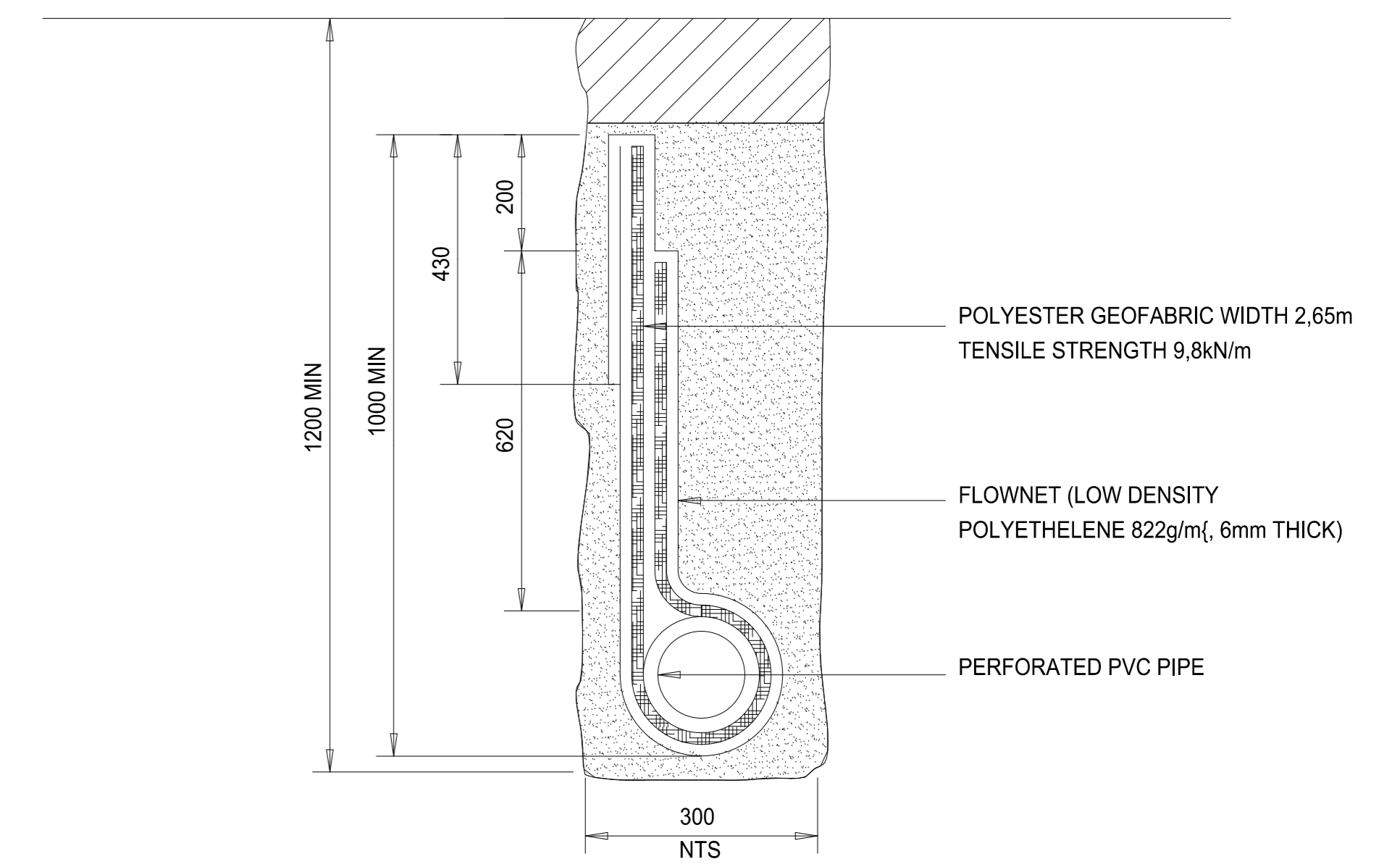
- IMPERMEABLE BACKFILL
- NATURAL PERMEABLE SAND FROM EITHER APPROVED SOURCES ON SITE OR COMMERCIAL
- GRADED CRUSHED STONE (FINE GRADE)
- GRADED CRUSHED STONE (COARSE GRADE)

**NOTE:**  
DESIGNS 1 AND 2 CAN BE EXCHANGED WHEN INSTRUCTED BY THE ENGINEER

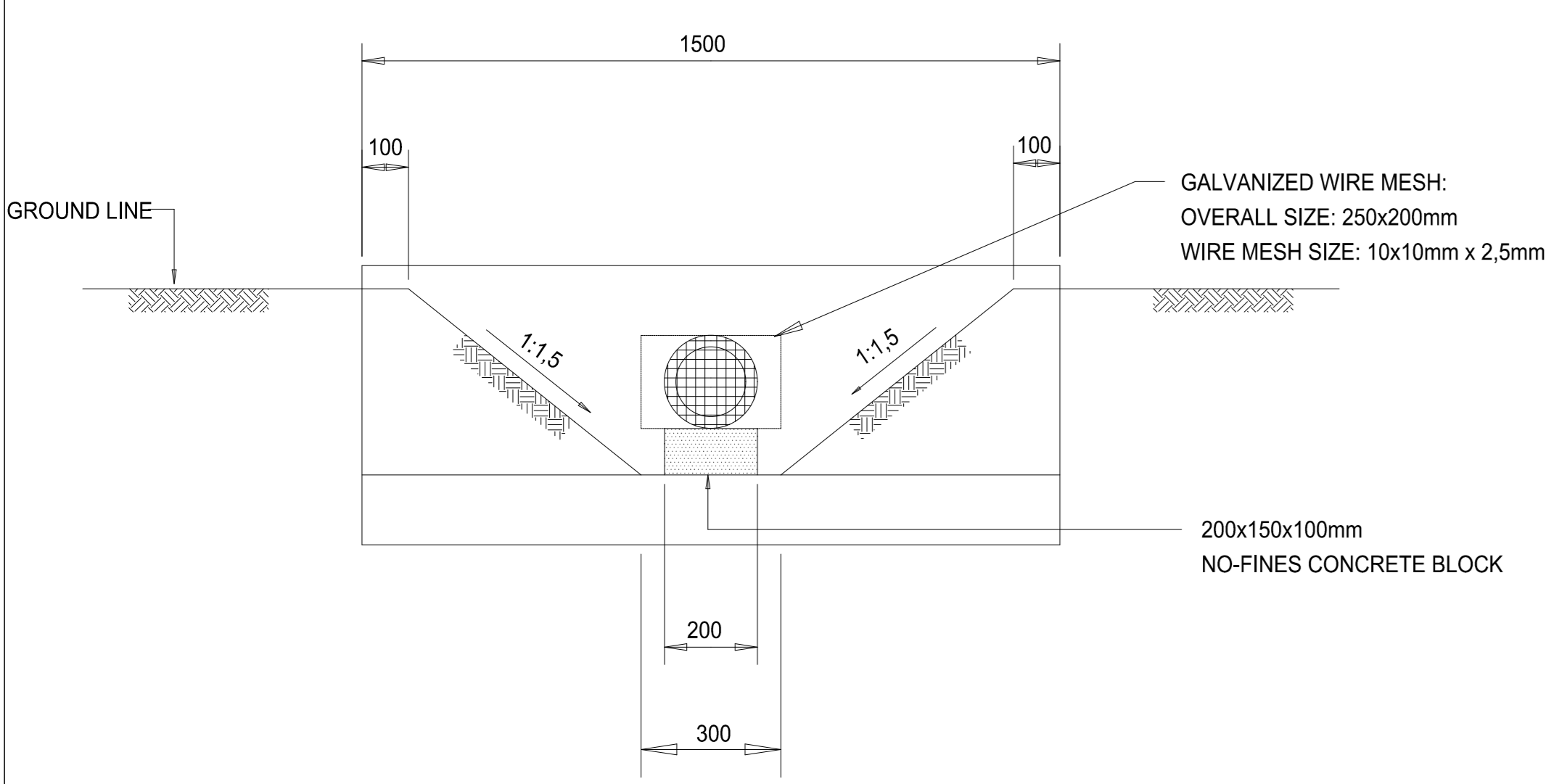


**DEEP CUT CONDITION  
TYPE "B" SUBSURFACE DRAIN**  
N.T.S.

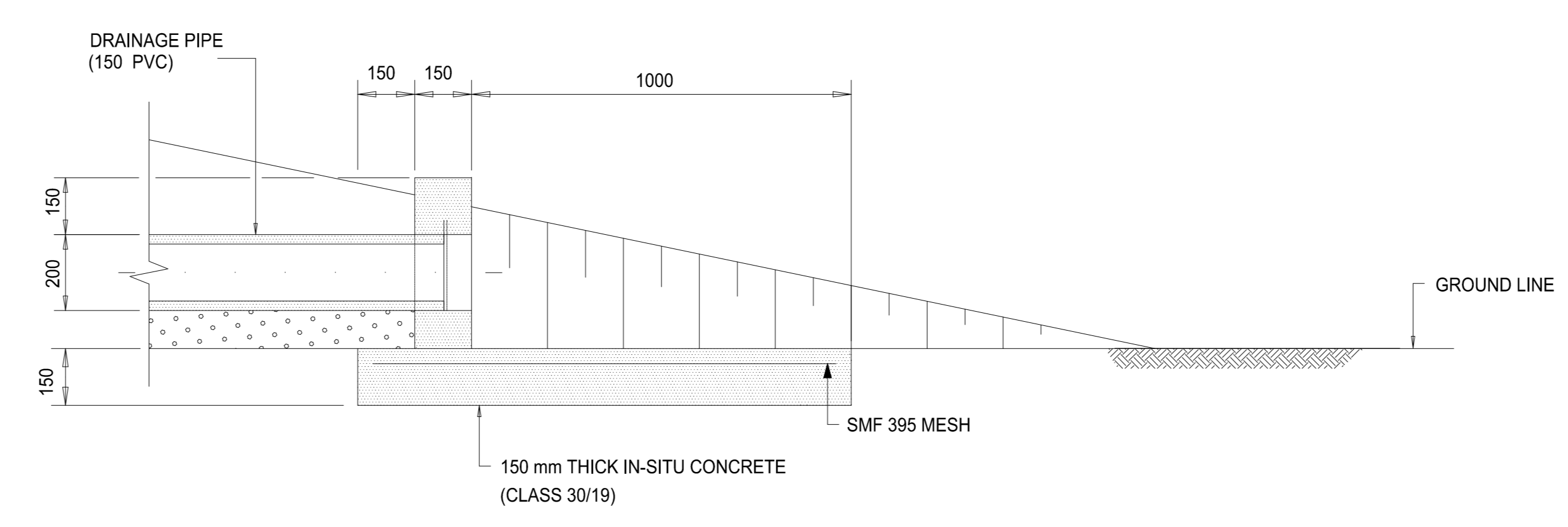
**NOTE:**  
FLOWNET AND PVC PIPE ONLY TO BE INSTALLED AT THE ENGINEER'S REQUEST



**SANDY CONDITION  
TYPE "C" SUBSURFACE DRAIN**  
SCALE 1:10



**FRONT ELEVATION**



**SECTION B-B**

**GRADING REQUIREMENTS OF CRUSHED STONE**

CRUSHED STONE SHALL BE GRADED CRUSHED STONE, WHICH CONFORMS TO THE FOLLOWING REQUIREMENTS:

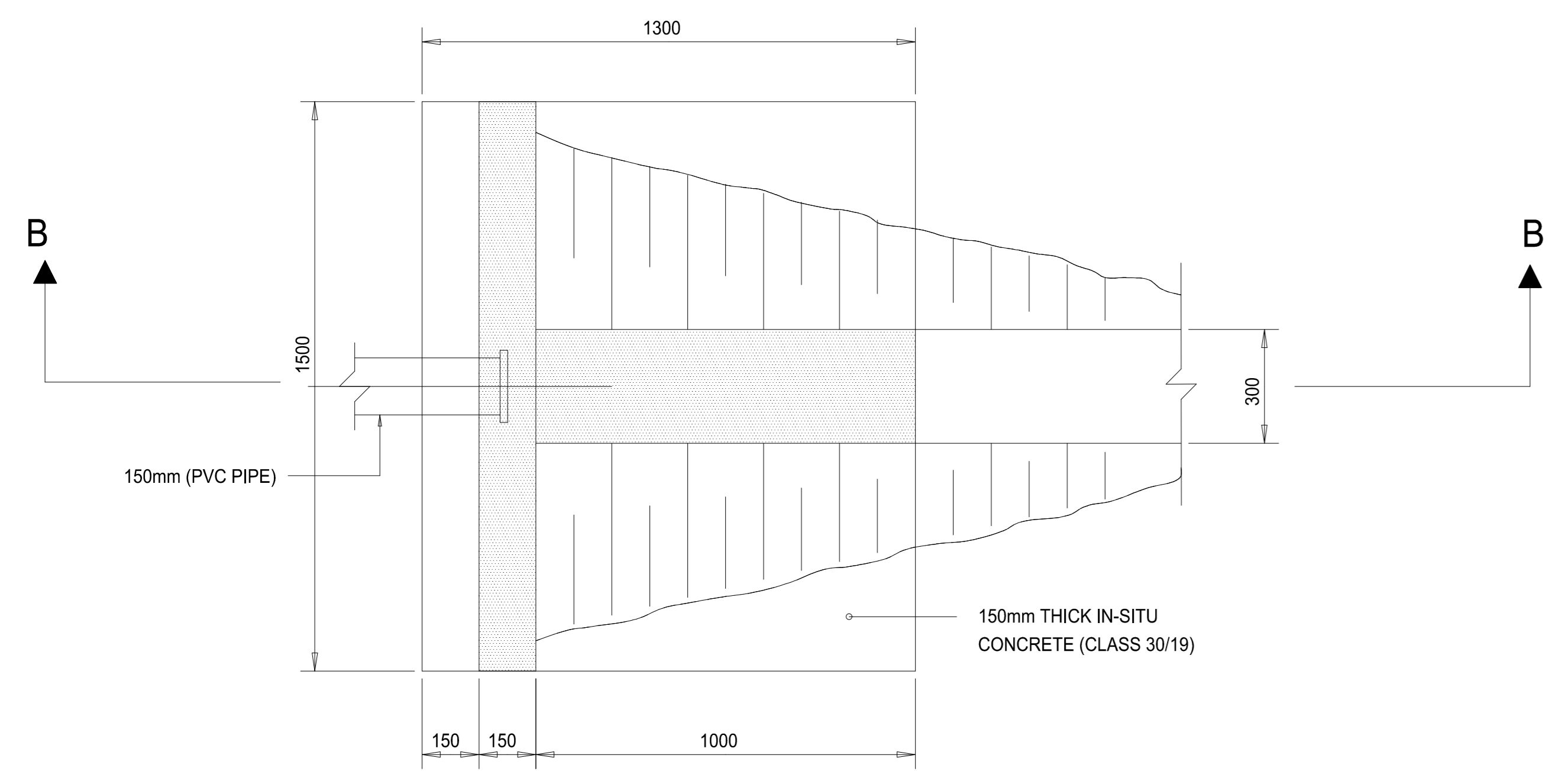
PERCENTAGE PASSING THROUGH A -

26.6mm SIEVE ..... 100  
13.2mm SIEVE ..... 60-85

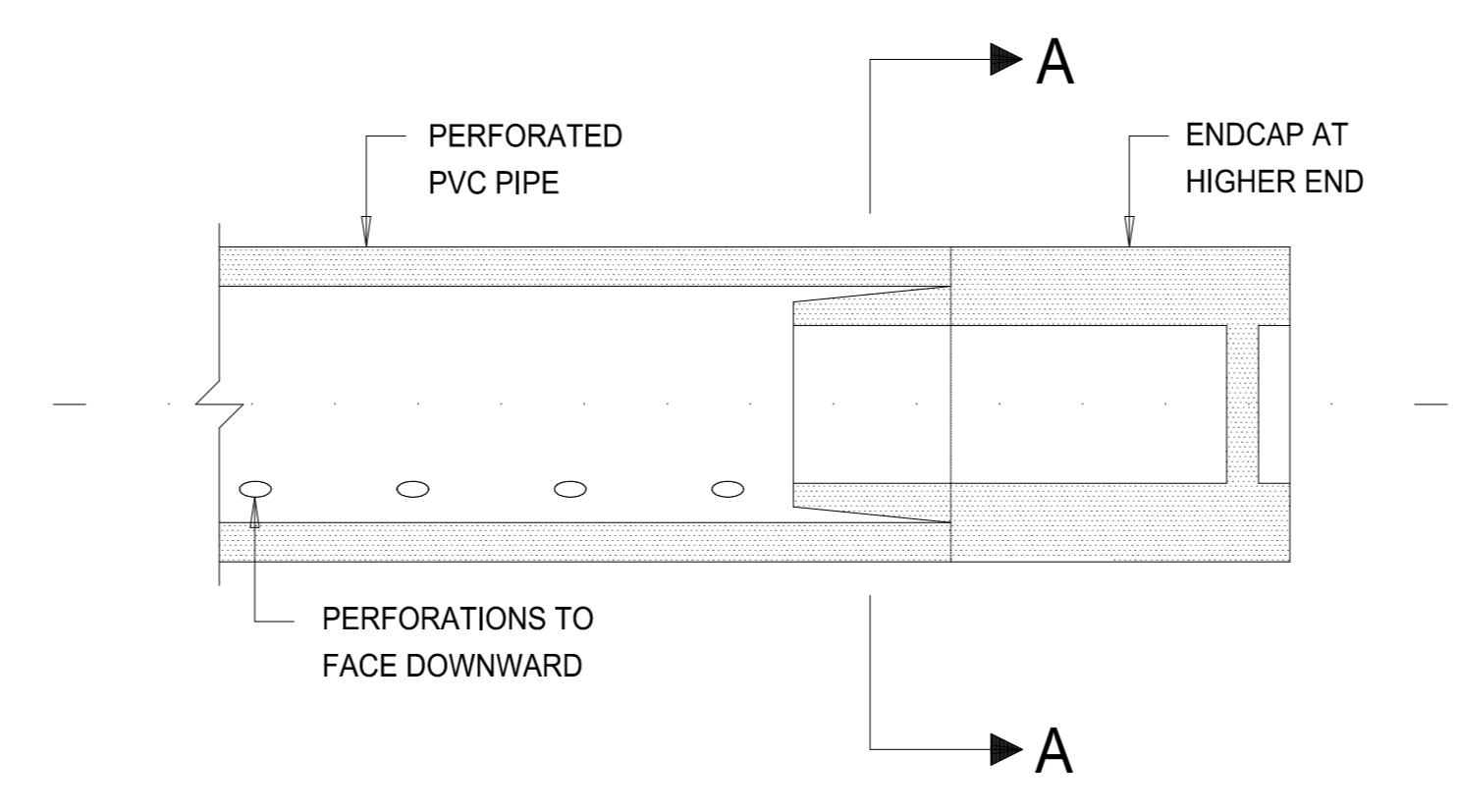
FINE GRADE STONE:  
A MINIMUM OF 15% PASSING THROUGH A 3.35mm SIEVE.  
A MAXIMUM OF 15% PASSING THROUGH A 1.18mm SIEVE.

COARSE GRADE STONE:  
A MINIMUM OF 15% PASSING THROUGH A 6.70mm SIEVE.  
A MAXIMUM OF 15% PASSING THROUGH A 2.36mm SIEVE.

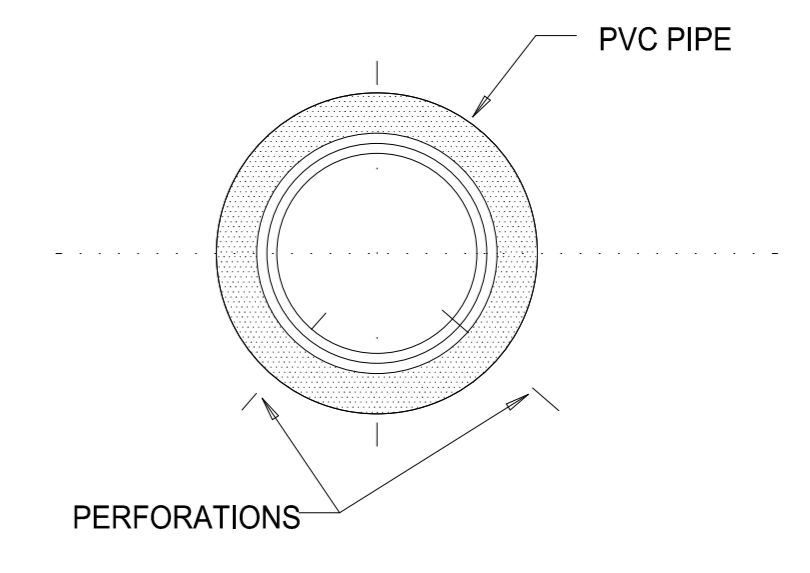
IN THE CASE OF ANY CRUSHED STONE NOT MORE THAN 5% OF THE MATERIAL SHALL PASS THROUGH THE 0.075mm SIEVE.



**PLAN  
DETAIL OF OUTLET STRUCTURE**



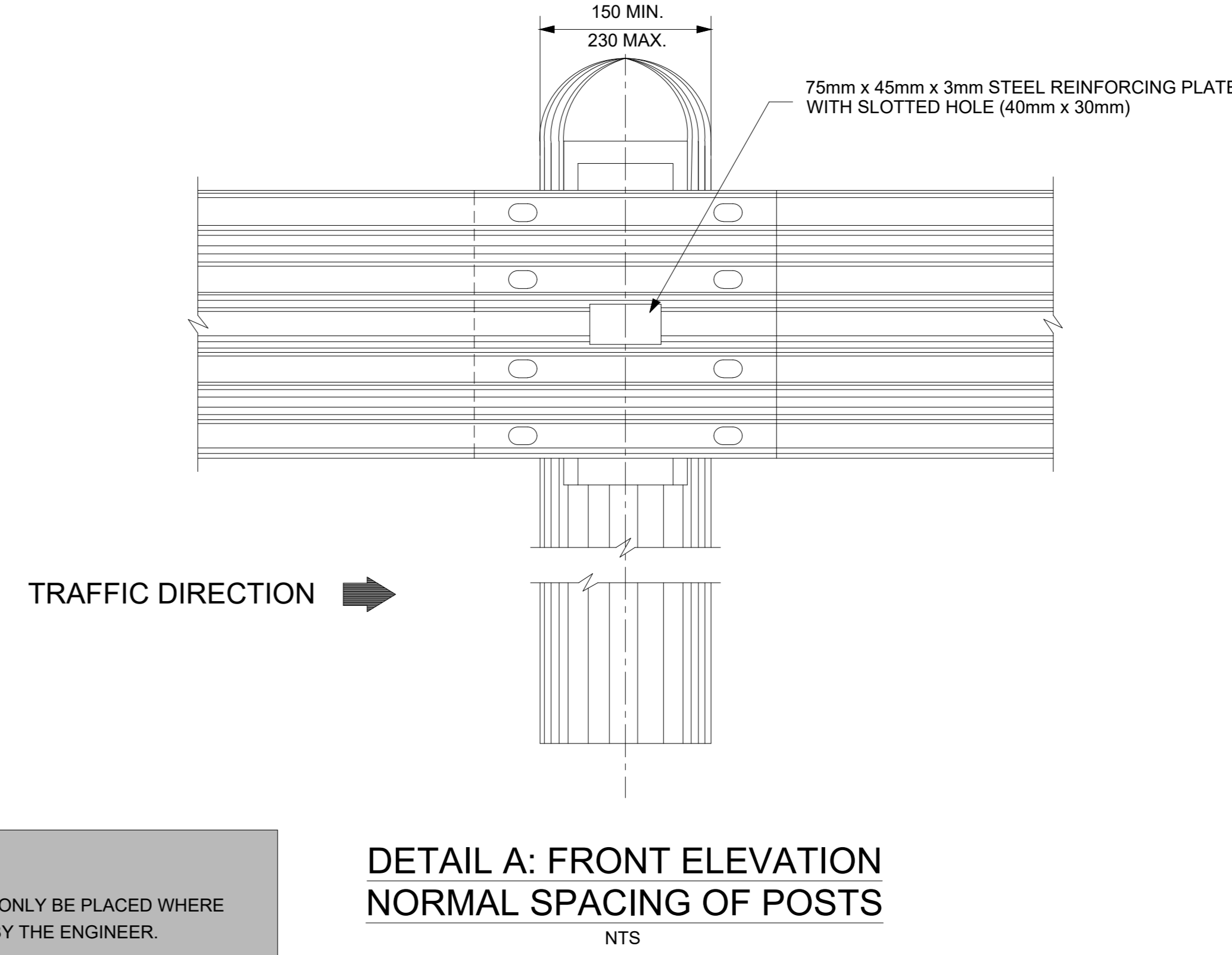
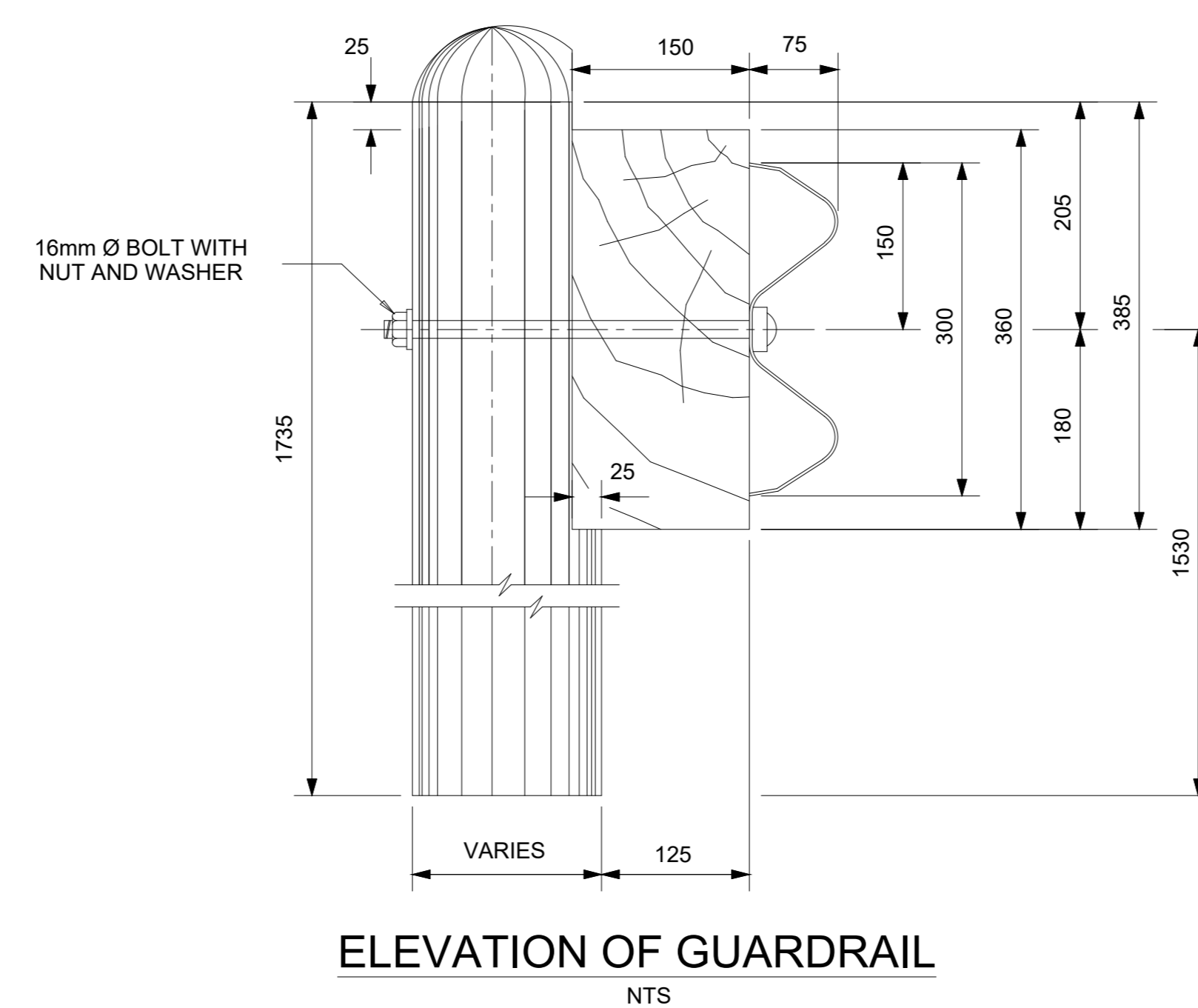
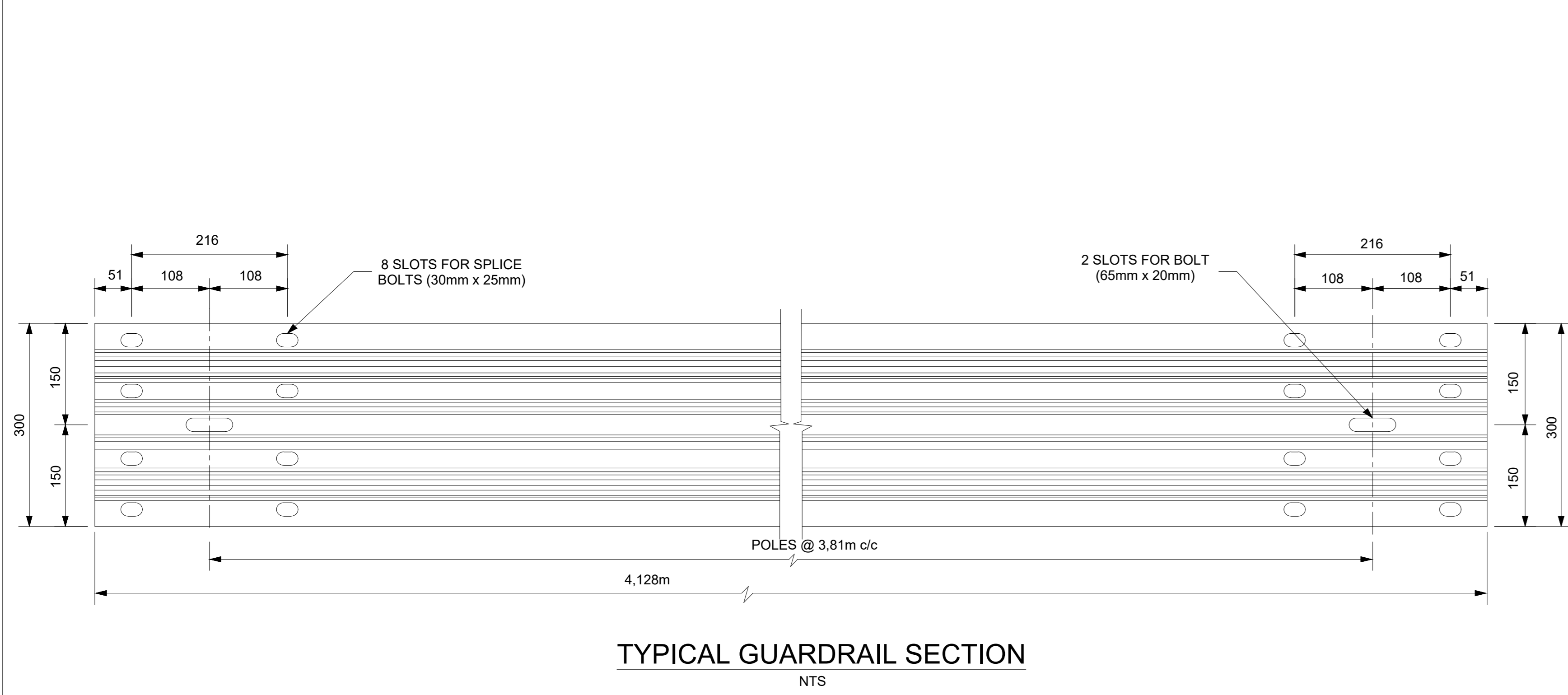
**SECTION THROUGH PIPE CENTRE LINE  
ENDCAP DETAIL**  
SCALE 1:5



**SECTION A-A**

**TENDER**

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DRAWN BY: N. JIYANE		1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070		PROJECT EMLOTSHWENI ROAD	DATE: JULY 2026
DESIGN CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647		P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111		DESCRIPTION SUB - SURFACE DRAINS	REVISION B
DESIGNED BY:					DRAWING NO: GG-2026-R-SD-04

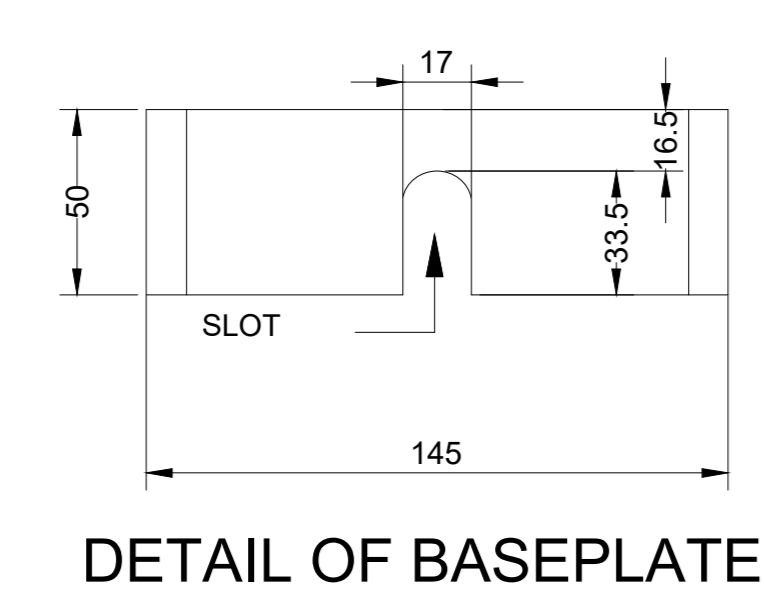
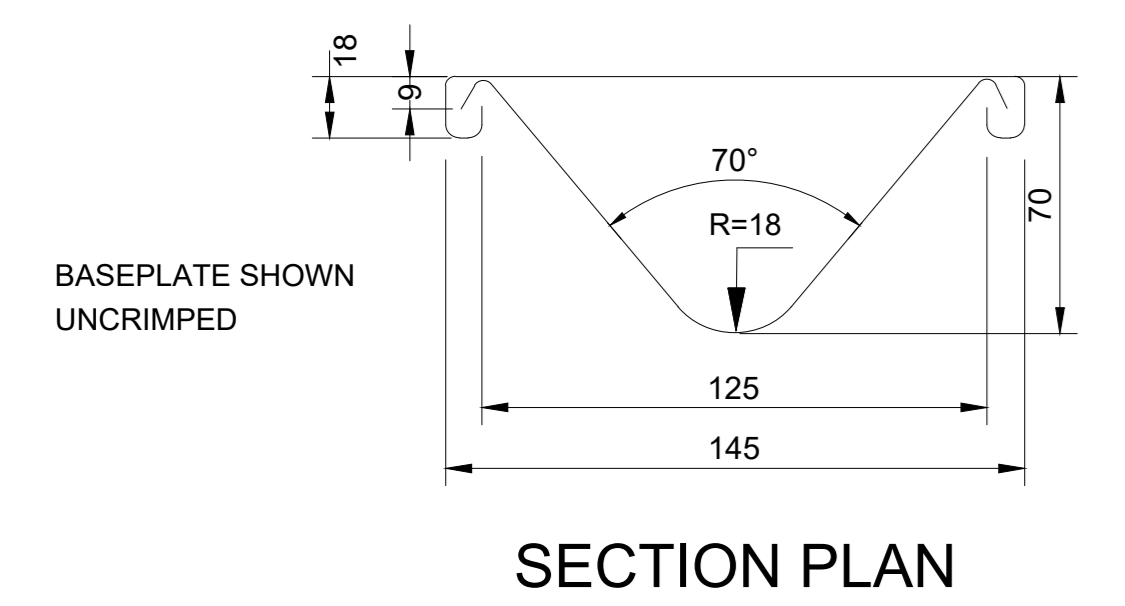
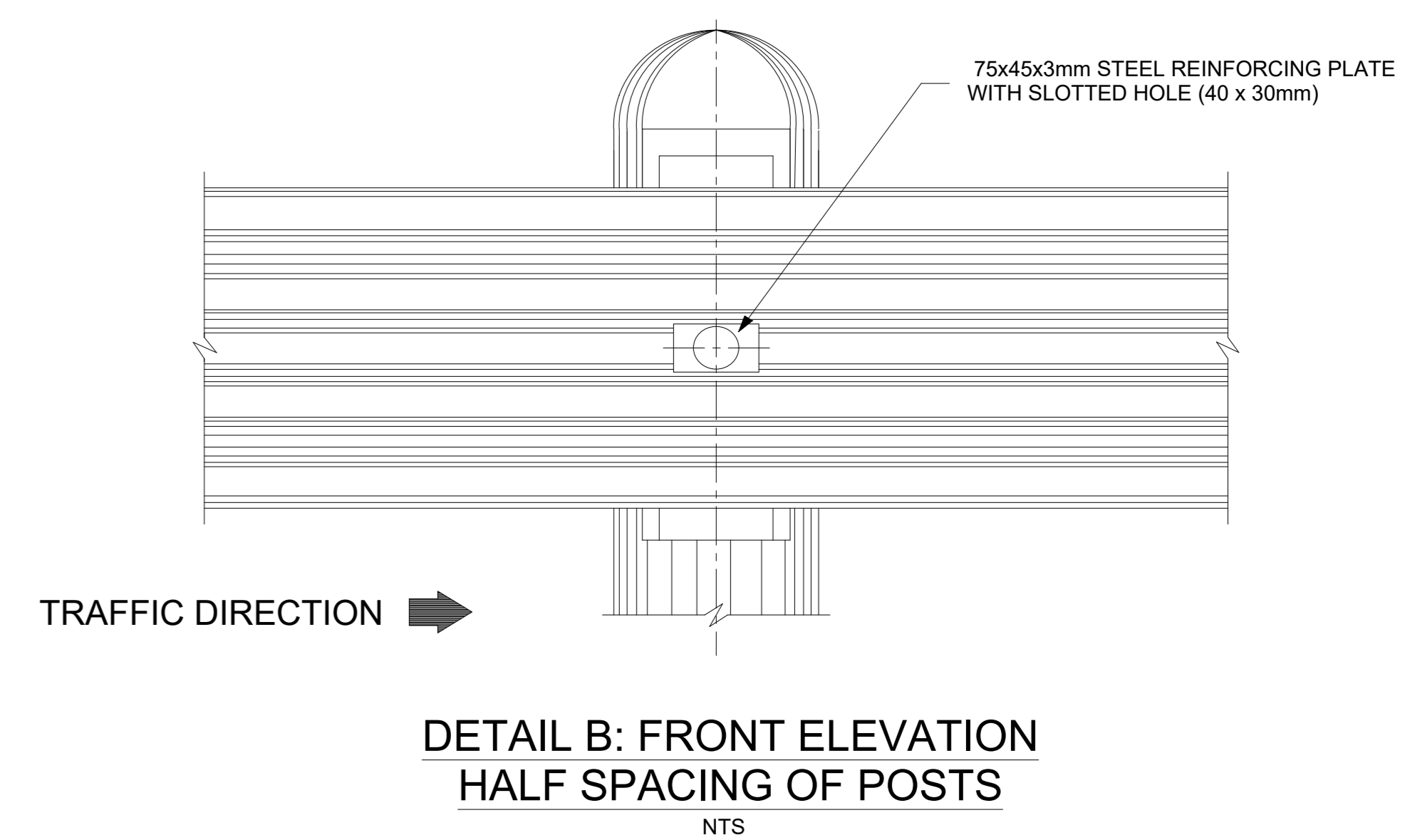
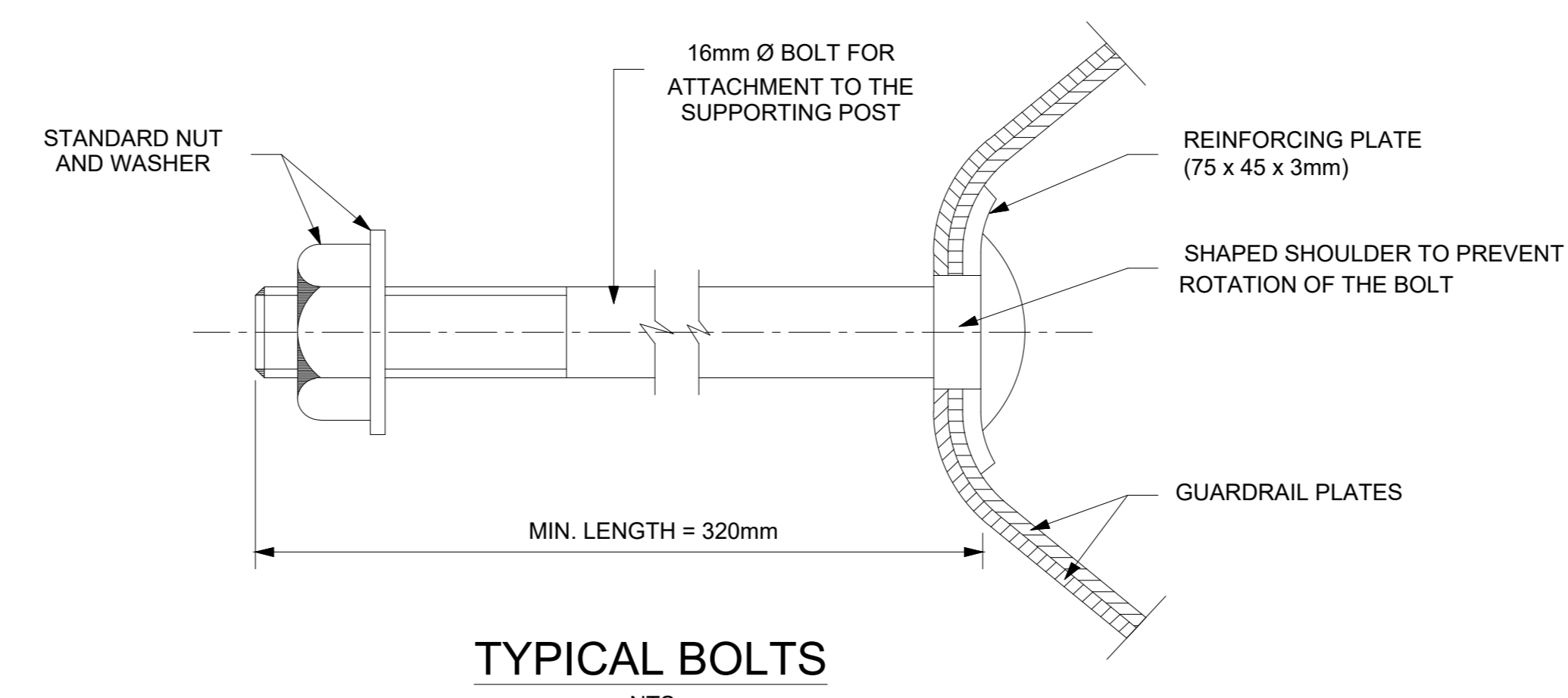
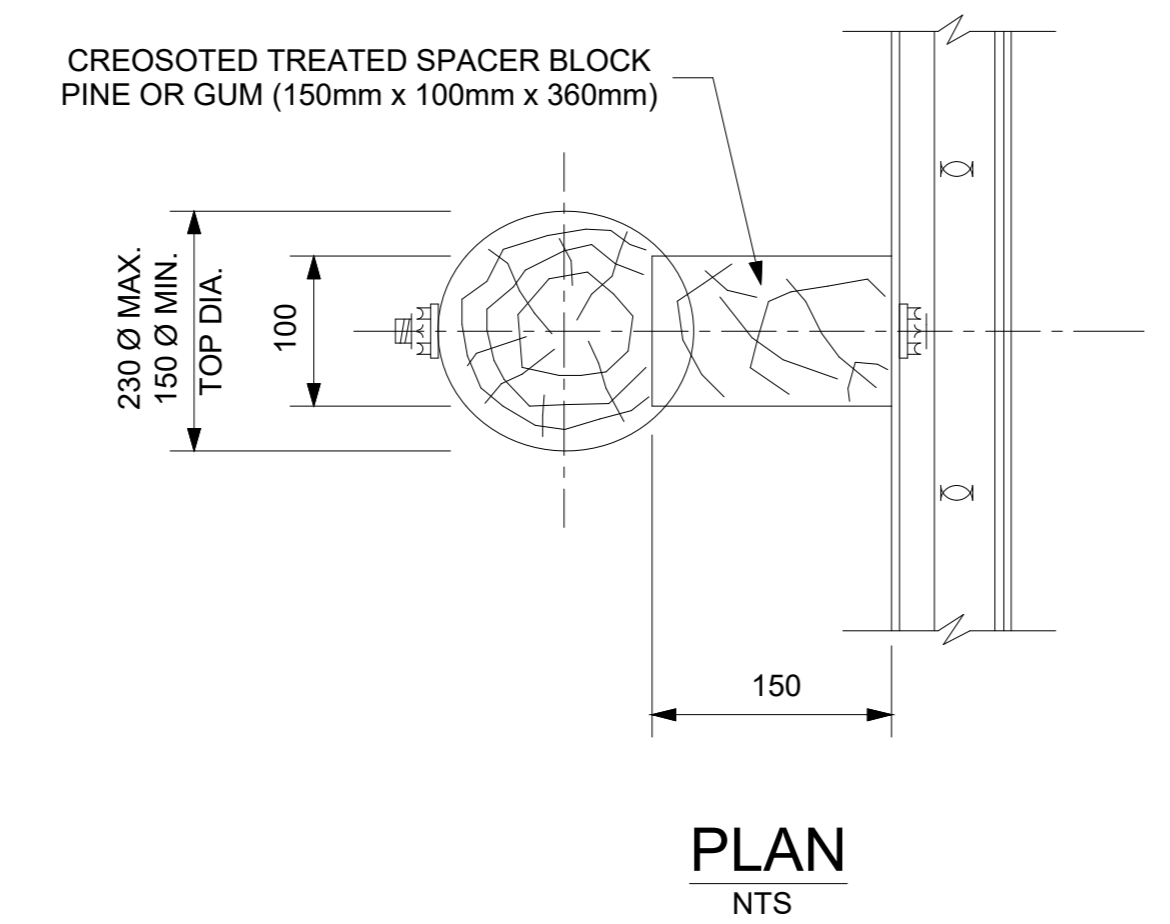
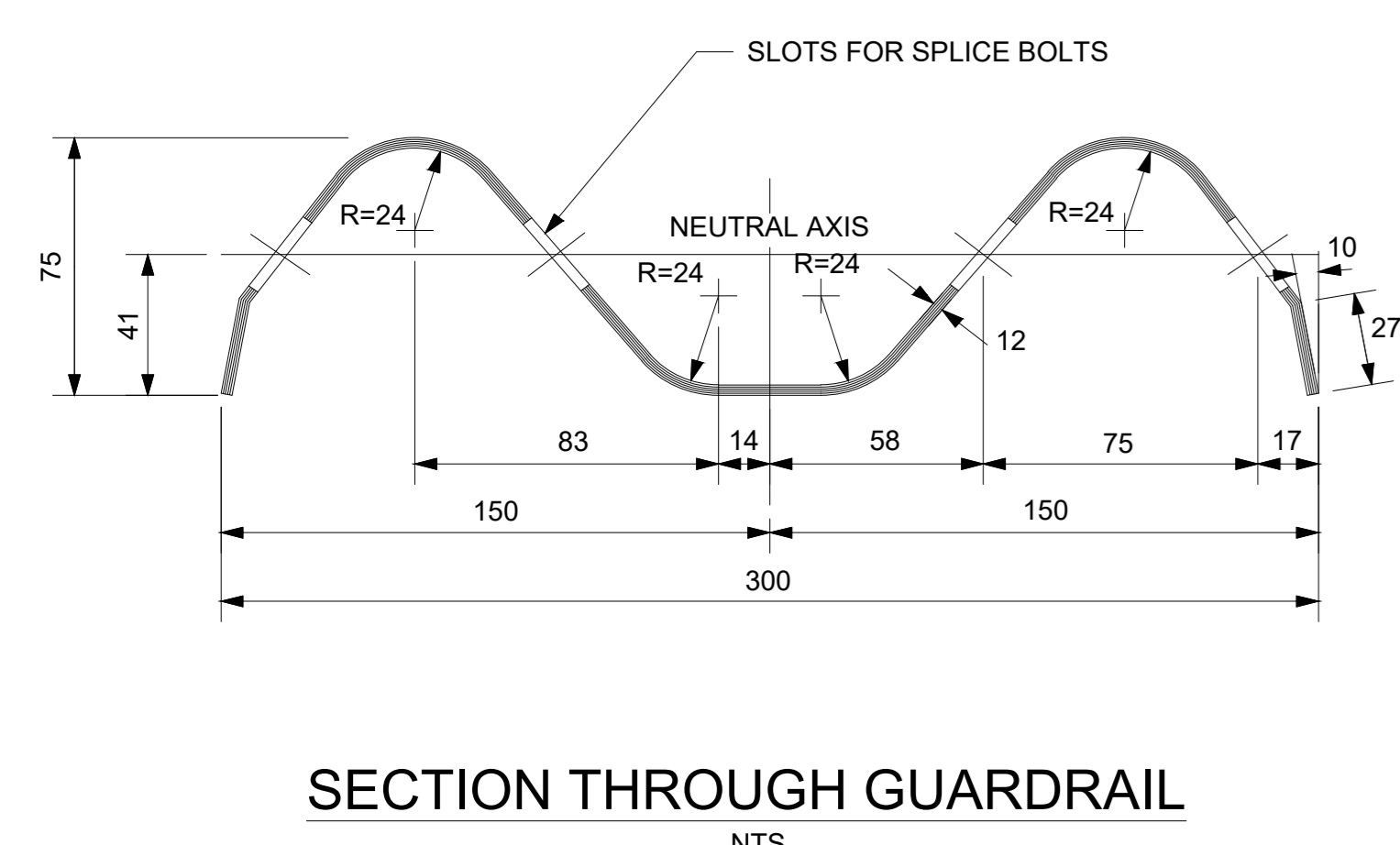


**SPECIFICATIONS**

- BOLT: HIGH TENSILE STEEL 16mm Ø
- WASHERS: 3mm THICK
- SPACER BLOCK: PINE OR GUM, PRESSURE IMPREGNATED WITH CREOSOTE WHICH COMPLIES WITH SANS 616:2008
- POSTS: 150mm Ø MIN - 230mm Ø MAX, PINE OR GUM, PRESSURE IMPREGNATED WITH CREOSOTE WHICH COMPLIES WITH SANS 616:2008.
- GALVANIZING: GUARDRAILS: SANS 121:2011: TYPE A1 ARTICLES. BOLTS AND WASHERS: SABS 763 TYPE C1 ARTICLES
- TIMBER POSTS: POSTS SHALL COMPLY WITH THE REQUIREMENTS OF SABS AND SHALL CARRY THE SABS MARK.
- CREOSOTE TREATMENT: TIMBER POSTS AND SPACER BLOCKS SHALL BE TREATED IN ACCORDANCE WITH SANS 05 WITH CREOSOTE WHICH COMPLIES WITH SANS 616:2008.
- REFLECTIVE PLATES: THE OUTER SURFACES SHALL BE COATED WITH ENGINEERING GRADE RETRO-REFLECTIVE MATERIAL WHICH COMPLIES WITH THE PROVISIONS OF CKS 191 IN THE COLOURS SHOWN ON THIS DRAWING.

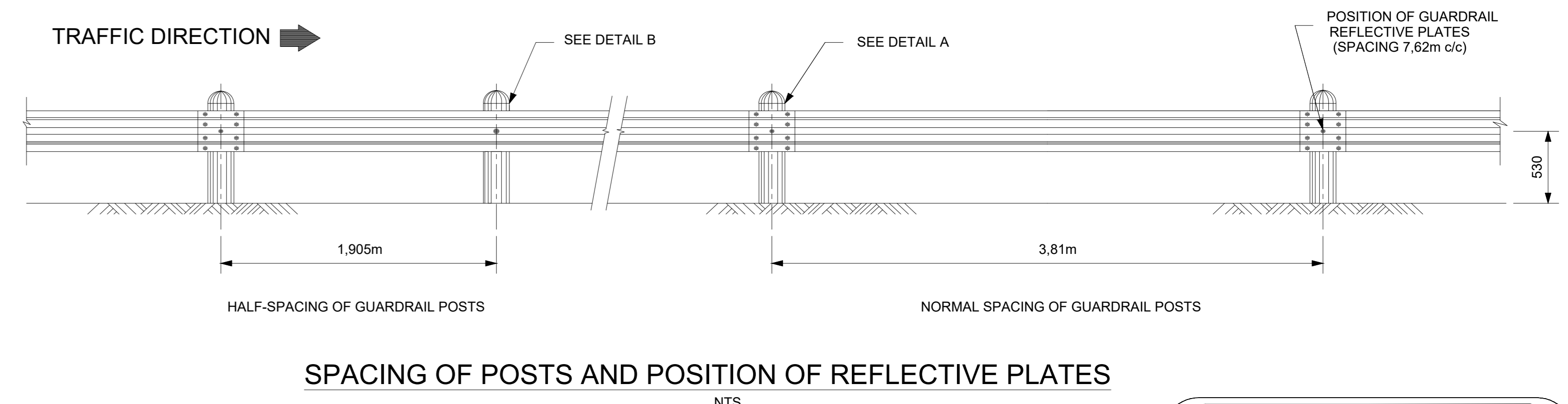
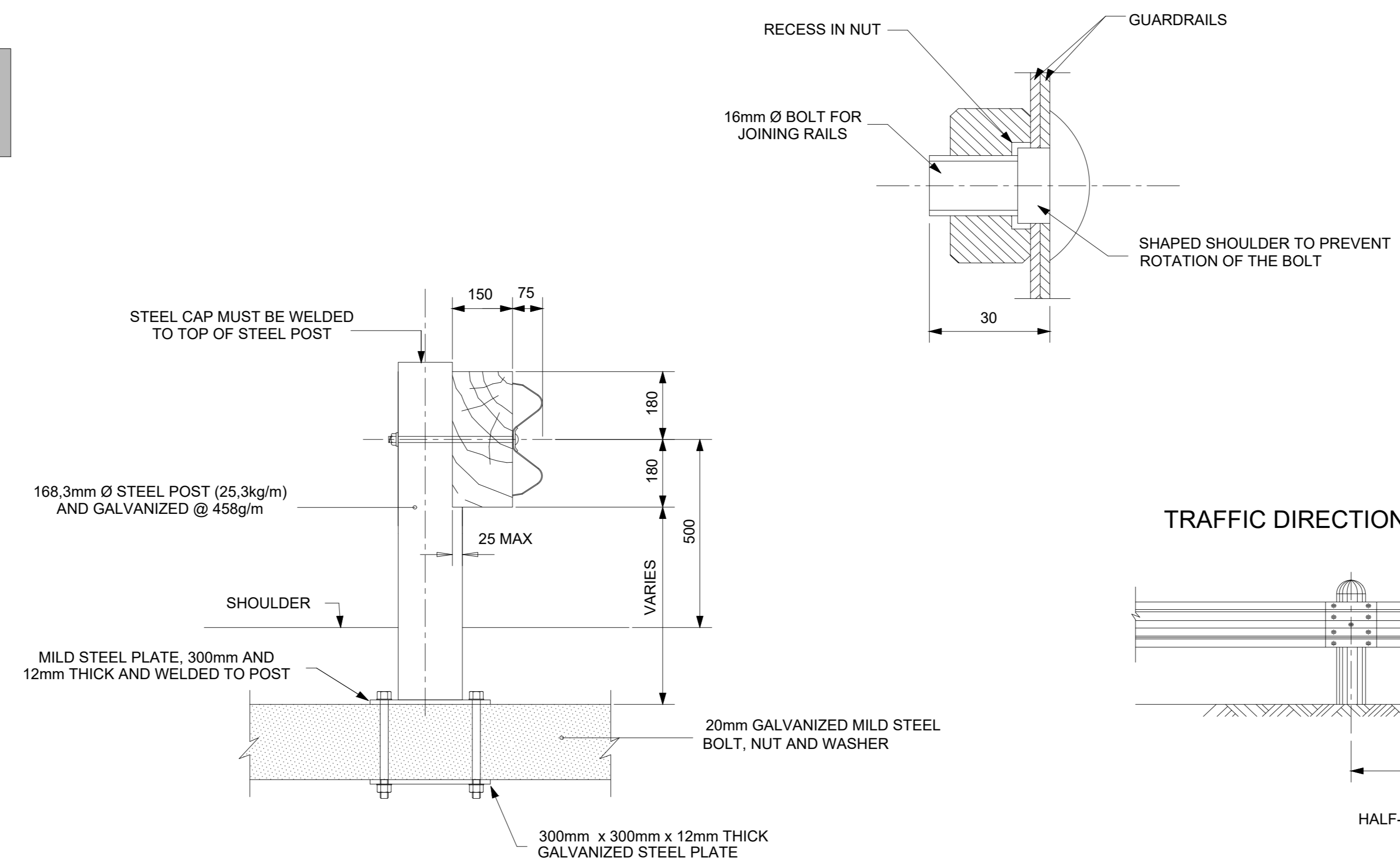
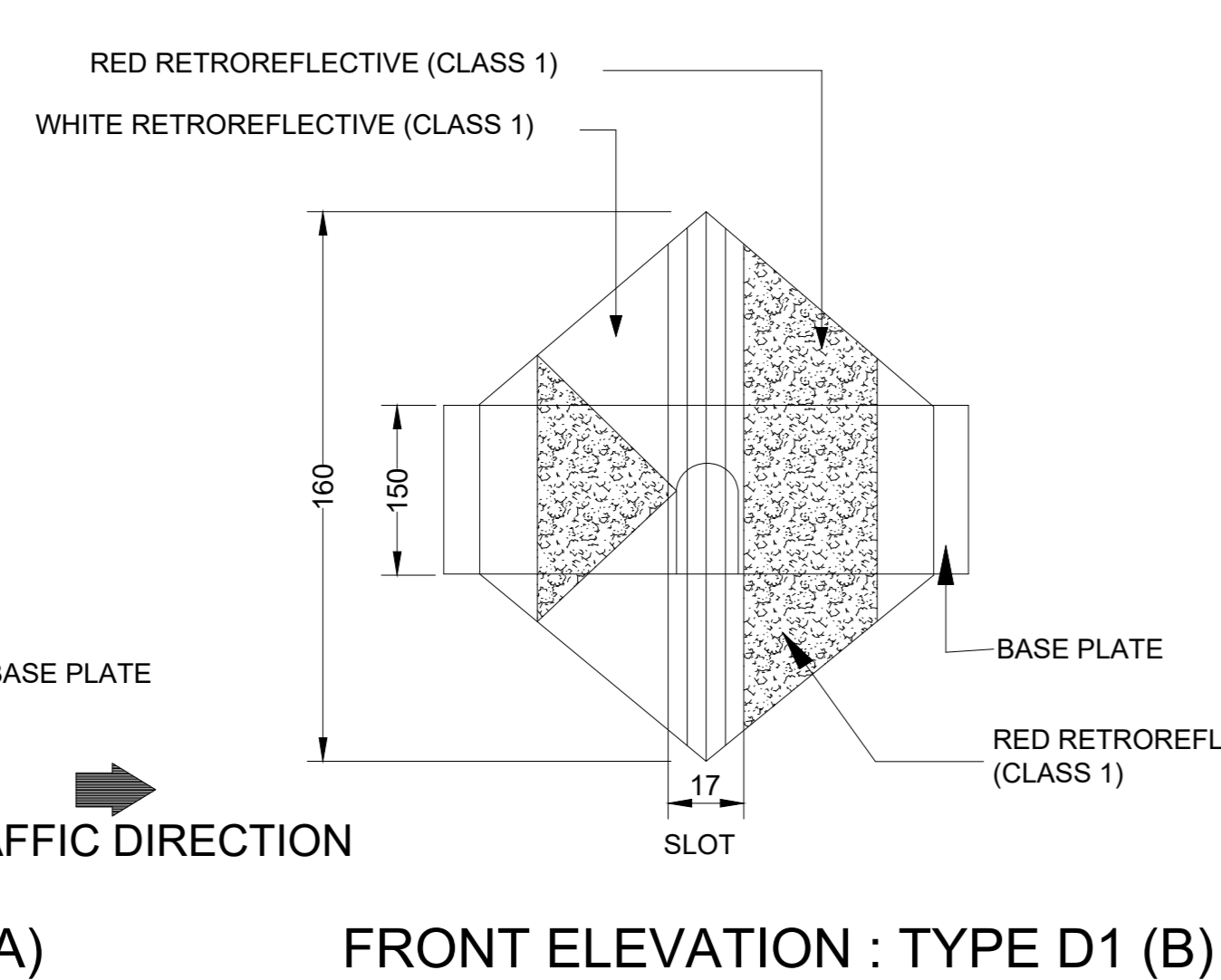
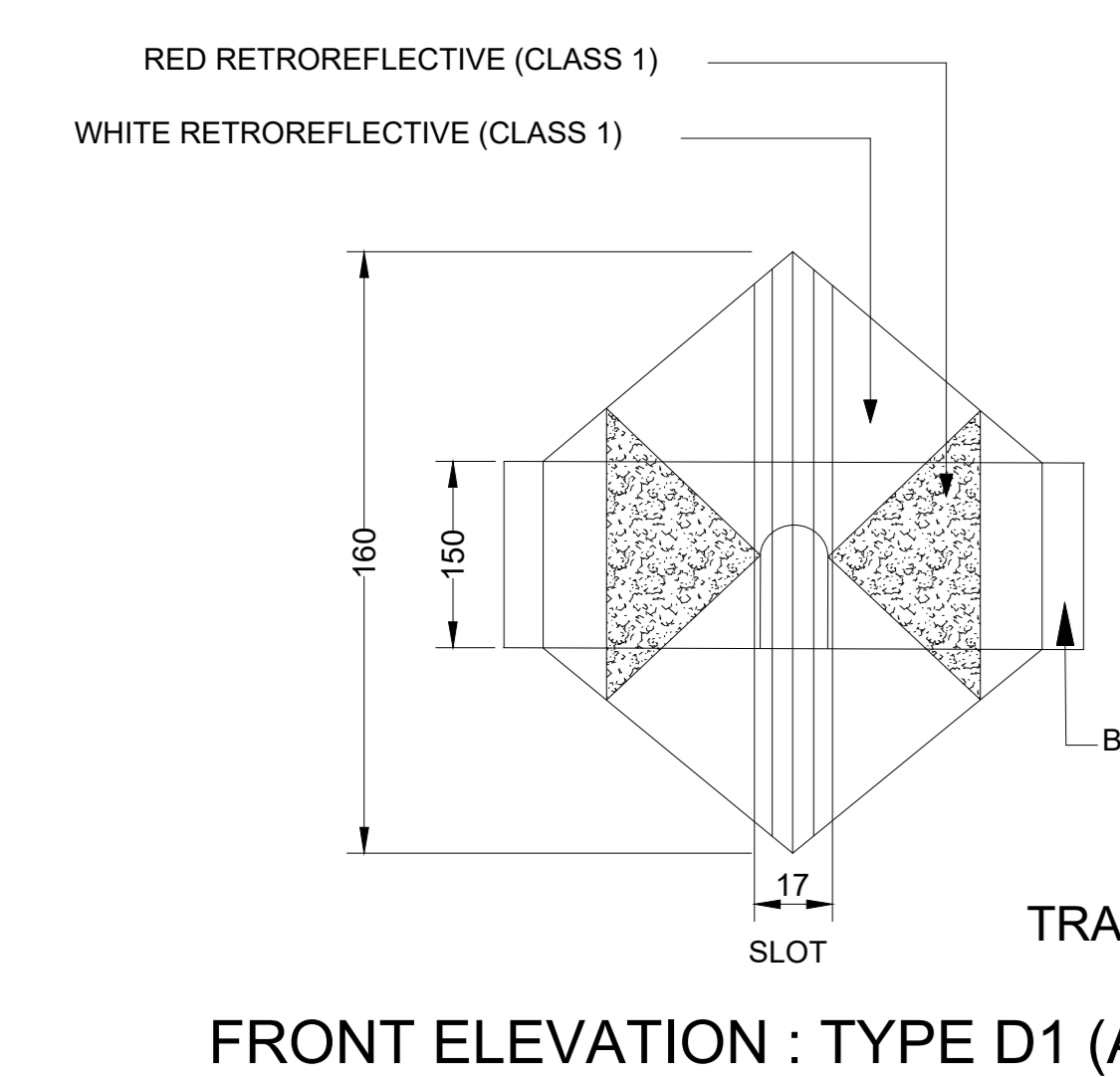
**NOTE:**

- GUARDRAILS WILL ONLY BE PLACED WHERE REQUIRED BY THE ENGINEER.
- ALL GUARDRAILS MUST BE GALVANIZED AS SPECIFIED (NOT PAINTED).



**NOTE:**

V-SHAPED REFLECTIVE PLATES ATTACHED TO EACH ALTERNATIVE POST-7.62m c/c



**DETAIL OF GUARDRAIL REFLECTIVE PLATES**  
NTS

**DETAIL OF STEEL GUARDRAIL POST**  
NTS

**SPACING OF POSTS AND POSITION OF REFLECTIVE PLATES**  
NTS

**TENDER**

DRAWING CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647	<b>CONSULTANT</b> GILA GROUP (PTY) LTD 24 OPAL STREET WEST ACRES MBOMBELA 1200 TEL: +27 67 776 - 6723 EMAIL: admin@gilagroup.co.za	CLIENT	CONTRACT NUMBER:	SCALE: AS SHOWN
DRAWN BY: N. JYANE		CITY OF MBOMBELA	PROJECT EMLOTSHWENI ROAD	DATE: JULY 2026
DESIGN CHECKED: T. MAGAGULA Pr Tech Eng : 2019300647		1 NEL STREET NELSPRUIT 1200 Fax.: (013) 759 2070	DESCRIPTION TYPICAL DETAILS : GUARDRAIL ELEMENTS	REVISION B
DESIGNED BY:		P. O. BOX 45 NELSPRUIT 1200 Tel.: (013) 759 9111		DRAWING NO: GG-2026-RD-S-11